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ABSTRACT

Dedicated to Margaret Langdon at the University of California, San Diego, for her contributions to Yuman studies, this volume of occasional papers contains papers presented at two conferences on Hokan-Penutian languages. The papers and presenters are as follows: "Yuman Linguistics: The Work of Margaret Langdon" (Leanne Hinton), which is both a narrative of Margaret Langdon's career and a comprehensive list of her publications; "John P. Harrington's Phonetic Representations of Obispeno Chumash Palatal Consonants" (Kathryn A. Klar); "The Vocabularies of Scouler, Tolmie and Coulter: A Reappraisal" (Anthony P. Grant); "Descent of Lake Miwok" (Catherine A. Callaghan); "Maiduan Noun Phrase Structure" (Eric J. Bakovic); "An Early Dieguena Wordlist" (Margaret Langdon); "-k and -m in Yuma Narrative Texts" (Amy Miller); "Statives in Walapai" (James E. Redden); "Vowel Length in Yavapai Revisited" (Kimberly Diane Thomas); and "Comparatives in Yuman Languages" (Pamela Munro). Contains approximately 125 references. (LB)

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## Number 17

# Occasional Papers On Linguistics

**Papers from the 1992 Hokan-Penutian Languages Conference and the J. P. Harrington Conference, Held at the University of California, Santa Barbara, and the Museum of Natural History, Santa Barbara, June 24–27, 1992.**

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Department of Linguistics
Southern Illinois University
at Carbondale

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Number 17

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Held at

The University of California, Santa Barbara

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June 24-27, 1992

James E. Redden, Editor

Department of Linguistics
Southern Illinois University
Carbondale, Illinois

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THIS VOLUME IS DEDICATED TO

PROFESSOR MARGARET LANGDON

ON THE OCCASION OF HER RETIREMENT

BY THE MEMBERS OF

THE HOKAN-PENUTIAN LANGUAGES CONFERENCE

FOR

HER MANY IMPORTANT CONTRIBUTIONS TO YUMAN STUDIES

AND FOR

HER ENCOURAGEMENT AND HELP TO ALL OF US.

# PREFACE

The 1992 Hokan-Penutian Languages Conference was organized by the Department of Linguistics at the University of California, Santa Barbara, and held at the Museum of Natural History, Santa Barbara, June 27, 1993. The J. P. Harrington Conference was held at the Museum of Natural History, Santa Barbara, June 24-26, 1993. Professor Victor Golla organized the J. P. Harrinton Conference.

Presenters from both these groups were invited to submit papers for inclusion in the 1992 Hokan-Penutian volume. Papers from both these groups are included in the volume. The papers appear here in the order that they occurred on the programs. Unfortunately, some papers from these conferences could not be included in this volume. All the papers except the last one were given at one of the conferences. The last paper was to be presented at the Hokan-Penutian Languages Conference, but a family emergency prevented the author from presenting it.

We are grateful to the University of California, Santa Barbara, and Professor Marianne Mithun for organizing the Hokan-Penutian Languages Conference. We are grateful to Professor Victor Golla of Humboldt State University for organizing the J. P. Harrington Conference. Likewise, we are most grateful to the Museum of Natural History, Santa Barbara, its director, and its staff for hosting the conferences and making our stay in Santa Barbara most enjoyable.

As noted on the dedication page, this volume is dedicated to Professor Margaret Langdon of the University of California, San Deigo, on the occasion of her retirement. She has been the guiding spirit behind Yuman Studies for some two decades. She established the Yuman Languages Archives at UCSD and organized the first three of the Hokan-Penutian Languages Conferences, which were called at the beginning the Yuman Languages Workshops. She has trained a number of well-known linguists who specialize in Yuman Studies. Her work in historical studies of Yuman and Hokan have benefited us all. She has been adviser, confidant, and helper of us all. We look forward to seeing the publication of the research she is still doing on Yuman.

To a gracious lady, scholar, and friend, we all say: "Thanks, Margaret, and keep on showing us the way in Yuman Studies."

James E. Redden, Editor

Carbondale, December 1992.

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# Yuman Linguistics: the Work of Margaret Langdon

Leanne Hinton

University of California, Berkeley

*__Preword__: Pamela Munro and I are editing a book on American Indian Linguistics, which will be published by UCPL. The book was originally conceived as a festschrift for Margaret Langdon, and this biography was written as the first article . UCPL, however, does not publish festchrifts. They accepted the book on its own merits, but in the end we were not able to include Margaret's biography in it. I nevertheless hoped to put the biography in print somewhere, along with the complete list of her publications, in honor of her recent retirement from UCSD; so Jim Redden graciously allowed its publication in these proceedings. And Margaret herself says she is much happier with this arrangement, anyway! --LH*

The field of Yuman language studies owes its richness and direction to Margaret Langdon, who inspired and guided its development. Langdon's life has many chapters, and it is only in the later ones that linguistics plays a role. Nevertheless, an abiding love and proficiency for languages appears in all of them.

Born Margaret Storms in Flemish-speaking Louvain, Belgium, she lived her first five years there, and then moved with her family to Brussels, where her father worked for the National City Bank of New York. Margaret was probably bilingual in French and Flemish early on, but she remembers coming home after her first day in a French-speaking Brussels kindergarten and announcing, "I'm through speaking that other language!" Having realized that children who spoke Flemish were laughed at, she left the language behind her, and spoke only French as her everyday language until she was an adult. French too was to be traded in later on for her adult language, English.

At age 14, Margaret's young life was shattered by World War II. Margaret's mother was felled by a cerebral hemorrhage, and died in the hospital on the very day the Germans marched into Brussels. Margaret's only sister, who was six years younger, was sent to live with their mother's sister in the country.

The family lived right between several military targets, including a training center for shooting, an airport and a munitions depot. Luckily her neighborhood was never damaged, although she could hear the air raids, and see the smoke billowing up all around. Once Belgium surrendered to the Germans, the bombing of Brussels no longer came from Germany, but from the Allies, which of course was no better.

Because they lived so close to military targets, Margaret and her father moved in with relatives near the center of town, which they hoped would remain safe from bombing because it was purely residential. During that time, the German troops broke into the Storms' house and occupied it. By the time Margaret's family returned, the house was a shambles. One of Margaret's most vivid memories from that painful era was the smell of the house upon her return: a smell of leather, metal and guns.

During the war, Margaret graduated from the Lycée, and would have gone to the university in Brussels except that the Germans closed it down. Margaret attended underground courses at professors' homes, but then the professors would disappear, and finally even that meagre alternative to education was too disrupted to continue.

Brussels was finally liberated and the war was over. Margaret went to work for the British Post Office, then for the RAF at the Brussels airport. Later the Belgian Airlines, SABENA, began to develop its postwar operations, and hired Margaret as a ground hostess, a job which does not exist in American airlines. The ground hostess meets the planes, translates for passengers, and ministers to their needs. SABENA bought some of the new fast DC-4's and started a new line to New York. By then, Margaret spoke English very well, so SABENA elected to send her to New York as their representative, to find out how the ground hostess program was run in America. Margaret was flown to New York and stayed there for three months. She immediately discovered, of course, that there is no such thing as a ground hostess in America; as everyone here knows very well, when you get off a plane in New York or any other American city, there is no one to meet the plane, no one to answer questions, no one to help solve a problem. Nevertheless, since Margaret was there in the airport wearing her uniform, she found herself a niche: people coming off planes from all airlines would flock to her for help, since she was the only available official-looking person anywhere near the planes.

While in New York, Margaret became close to Arthur Hoffman, a graduate student in chemistry at Columbia University. They married, so she went back to Belgium only briefly, to get her papers in order, and then settled in the United States for good.

Margaret continued working for SABENA for a while, and then went on to get a job with the French Line steamship company, where she worked for the next five years until Arthur got his Ph.D. in organic chemistry. Arthur and Margaret packed up and went to New Haven for a post-doc.

The move to New Haven led to a self-examination which resulted in separation of ways between the two. After seven years of marriage, Arthur and Margaret divorced, and Margaret went back to New York. She worked at a series of jobs, and eventually moved to Greenwich Village, where she roomed with a woman friend. Life was enjoyable, but it was clear to Margaret that she was not really getting anywhere. She decided she would have to go back to school. New York did not seem the right place for this endeavor -- life was too hectic there. So Margaret and her roommate decided to move to California. They accomplished the long journey in the first Fiat 500 to arrive in the United States.

The two ended up in Berkeley, where Margaret's first task was to find work. She ultimately found a job as secretary to Professor William Nierenberg, in the department of physics at the University of California. Then she applied for admission to the university, and was given two years of lower division credit for her schooling at the Lycée in Belgium, which meant she could start out as a junior and had to declare a major immediately. As yet she did not know what field she wanted to go into, although she knew she wanted to do something with language. She had taken courses in Germanic and Romance philology, but those areas weren't quite what she wanted. By then, Margaret had met a number of anthropologists at Berkeley, and she consulted one of them about her quandary, saying "I want to study something about language, but I don't know what to major in."

Her friend responded, "Well, obviously, you belong in linguistics."

"What's linguistics?" said Margaret.

He answered, "I'll give you a book."

What he gave her was Sapir's Language. Reading Sapir was a revelation to Margaret. She knew immediately that this was her chosen field. Soon afterward, she went to the Linguistics department, and was directed to Mary Haas, who was the departmental founder and chair.

Margaret introduced herself, saying, "I've been admitted to the university, and I'd like to be a linguistics major."

Mary Haas gruffly responded, "Do you know what linguistics is?"

"Not very well," answered Margaret humbly, "But I've read a book."

"What book?" said Miss Haas.

"Sapir's Language."

"Oh, all right then," was Haas's immediate response. "But the first course you take is Sanskrit!"

In those days, a year of Sanskrit with Murray Emeneau was required of all linguistics students. Margaret walked in, and fell in love with Sanskrit. To this day, Margaret believes that there is no better introduction to linguistics than a solid, technical course in Sanskrit.

Margaret went on for awhile working full time and taking one course per semester, but became anxious to make faster progress in her student career. Dr. Nierenberg was by then the scientific advisor to NATO, and was not at Berkeley as much as before; so Margaret proposed that she reduce her work to 2/3 time, and was thus able to take two courses in a semester. With that and summer courses, by 1962 she finally got a BA in linguistics.

By then she had decided to go on to graduate school. She had already taken most of the courses available to graduate students. With virtually no courses left to take, what was left was for Margaret to decide what she wanted to do for her dissertation. This was the heyday of Americanist studies at Berkeley. Margaret's fellow graduate students included many who were beginning a life-long specialization in American Indian languages -- Catherine Callaghan, James Crawford, Victor Golla, Terry Kaufman, Sally McLendon, and Shirley Silver were among her companions. Bill Shipley and Harvey Pitkin had recently gotten their degrees and were now on the faculty there. Margaret had taken Mary Haas's course in American Indian languages, and she had heard many fieldwork tales -- all the great adventures and all the horror stories. She decided that she'd like to share in the excitement, so she made another historic visit to Miss Haas's office.

"I think I'd like to do some fieldwork," Margaret said.

Mary responded, "There is one language in California that we don't know anything about."

Margaret exclaimed, "Great. I'll take it!"

Mary went on, "It's Diegueño, and it's in San Diego County."

At that time, Margaret barely even knew where San Diego was. But she cheerfully began preparations for this new venture. She wrote to Professor William Bright, one of the first people who had gotten his Ph.D. in linguistics at Berkeley, now a well-known linguist. He had done a linguistic survey of Indian communities in Southern California, and he referred Margaret to Florence Shipek, a local anthropologist who worked closely with the Diegueños. Dr. Shipek gave Margaret the third degree for about five hours, before deciding that she was going to be all right as a field worker; then she gave Margaret the address of Ted Couro, a Northern Diegueño speaker who lived with his wife Lillie in Escondido. That was the start of a long, close friendship and working partnership between Ted and Margaret.

Margaret rented a small, pleasant cottage in Escondido, worked daily with Ted, and spread her file slips out on the floor each night. Only one other Yuman language (Yuma, by Abraham Halpern) had ever been described in any detail before, so Margaret had little precedent to follow in her research. She recalls the evening that she finally solved the greatest phonological problem in Diegueño: the vowel system. There were dozens of phonetic vowel sounds in Diegueño, which had been plaguing her for weeks, until that night when she suddenly realized that they reduced to a three-vowel system. Margaret danced around in elation, alone in her little cottage, and at that moment acknowledged to herself for the first time that she really was a linguist. Recalling that event years later, she says that fieldwork is clearly one of the most important growing experiences a linguist can have.

After the first spring and summer of fieldwork, Margaret returned to Berkeley for the grueling comprehensive exams, and then went back to San Diego the next spring. Ted Couro had recently had a heart attack, and although recovering well, warned Margaret that he would be unable to work very much that summer. Florence Shipek came through for Margaret again, telling her about Christina Hutcheson, a relative of Ted's. So

Margaret went to see her: about 85 years old, Christina lived alone in a tiny house in San Diego. She was willing to work with Margaret, so this time Margaret decided to stay in San Diego rather than Escondido. She rented a cottage there.

The first weekend she moved in, her landlords invited her to the theater, and prior to the show, to dinner at the home of Louis Schlom, a local physician. Lou was busy making a big Chinese dinner, and during the cooking he had a very brief conversation with Margaret, asking her what she did. She told him about her work with the Diegueños, and so the gourmet cook said "Oh! What do they eat?" Margaret responded, "Well, they eat pretty much what we do, but aboriginally they used to eat acorns and wood rats and things like that." They had no further conversation that evening; Margaret and her friends ate dinner and then took off for the theater.

The next morning the landlord called her and said there was someone who wanted to talk to her. Margaret didn't know anyone in town, so she couldn't imagine what this could be about. But she went outside, and there was a tall, dark man who introduced himself as Dick Langdon. He said, "You the girl who eats rats with Indians?"

Dick was a good friend of Lou's, and Lou had called him and said he had just met a very interesting lady, and why didn't Dick go look her up? And so he did.

Dick and Margaret got to know each other well, and after a while they got married, thus providing Margaret with the last name she is known by professionally. Margaret moved onto Dick's property in San Diego, where he has achieved local fame as a grower of exotic Asian fruit trees and bamboos.

It wasn't long after their marriage that linguist Leonard Newmark wrote Margaret a letter asking her if she would like a job in the newly created Linguistics Department at UCSD. He had heard of her through the grapevine, called Mary Haas and Madison Beeler at Berkeley for telephone recommendations, and then simply offered Margaret the job. She has been there ever since. It is a rare blessing when one's fieldwork, spouse, home, and job all combine so neatly. Margaret had managed to construct a life where all the pieces fit together.

The first year of the department's existence, Margaret taught a short load so she could finish her dissertation. She taught Field Methods with

Rosalie Pinto, another Diegueño speaker and good friend, to a memorable first year graduate class. In 1967, she completed her family by having a baby, her daughter Loni Christina Langdon.

Margaret Langdon's first two publications were on French: she wrote an article for Romance Philology on Middle French word formation, and reviewed a French monograph for IJAL. After that, however, most of her work has been concentrated on Yuman languages. She has published a great deal on her foremost field language, Diegueño, beginning with the monograph based on her dissertation, *A Grammar of Diegueño: The Mesa Grande dialect* (1970). She collaborated with her two Diegueño consultants (Ted Couro and Christina Hutcheson) on the *Dictionary of Mesa Grande Diegueño* (1974), and with Ted on the pedagogical text *Let's Talk 'Iipay Aa* (1975). She has also written many articles on Diegueño grammar and dialectology, and has published a number of analyzed texts. She edited a volume of Yuman texts (1976) in which one of her analyzed texts appeared, and with Leanne Hinton edited a section on Diegueño texts in the book *Spirit Mountain* (1984).

Other Yuman languages have also received her skilled attention. She wrote an article on the Yuman languages Kamia and Kumeyaay (1975), and a delightful one on Cocopa Animal talk (1978). Travelling further afield, she has written an excellent description of Guarani sound symbolism (forthcoming).

But Langdon has been most influential for her comparative work in Yuman. Her first comparative study was a substantive review of Wares' *A comparative study of Yuman consonantism* (1970), where she suggested a number of revisions in his reconstruction of the Proto-Yuman consonant system. Her next comparative paper was on sound symbolism in Yuman languages (1970). Her 1975 study of boundaries and lenition in Yuman languages was of special theoretical interest because of its demonstration that several different morpheme boundary types have to be recognized in order to account for restrictions on phonological rule application. In 1976 she published an article with Leanne Hinton on object-subject pronominal prefixes in La Huerta Diegueño, which included a reconstruction of Proto-Yuman pronominal prefixes and an analysis of their development in the Yuman languages. Other comparative Yuman work includes her fascinating study of metathesis in Yuman languages (1976), her study of stress, length and pitch in Yuman (1977), syntactic change and SOV structure (1977), the semantics and syntax of expressive "Say" constructions in Yuman (1977), auxiliary verb constructions in Yuman (1978), the origin of possession markers (1978), Yuman "and" (1985), and Proto-Yuman *a:- (1985). She also co-authored two important papers with Pamela Munro, one on Yuman numerals (1980) and one on subject and switch-reference (1982).

The Yuman language family belongs to the hypothesized Hokan stock. The Hokan hypothesis has in recent years been thrown into doubt, simply because of the lack of careful studies. Langdon has done some extensive investigation of Hokan, in such works as her monograph *Comparative Hokan-Coahuiltecan studies*, and her more recent paper 'Hokan-Siouan Revisited' (1986). Perhaps her most important paper for these deep-time investigations is her 1979 paper on Yuman and Pomoan, the two largest families within Hokan. There she provides convincing proof that they are in fact related. She has more recently done the same thing with Yuman and Seri.

Langdon has also published some excellent work on areal studies. One of the most intricate and fascinating of these is her paper with Shirley Silver, 'California t/ʈ' (1984).

Langdon has inspired many of her students to work on Yuman languages. Among her advisees who have completed dissertations on Yuman languages are Birgitte Bendixen, Larry Gorbet, Leanne Hinton, Amy Miller, Pamela Munro, and Sue Norwood. She has also been exceedingly helpful to students from elsewhere doing dissertations on Yuman languages, and to colleagues working in that field. To stimulate group discussion and research, Margaret applied for and received a grant from NSF to host the first Hokan Conference in 1970, which had a strong emphasis on comparative studies. The proceedings, edited by Margaret with Shirley Silver, were later published by Mouton (1976). Margaret went on to do research on comparative morphosyntactic Yuman studies, resulting in a series of important papers. Another grant associated with that project allowed her to host a comparative Yuman workshop in 1975. At that time, the group she gathered together decided to have the conference on a yearly basis, rotating between various campuses. Sometimes centered around Yuman or Hokan, and sometimes including other California language families, this conference has stimulated Yuman studies for over a decade now, and has provided a large series of important publications; the proceedings of the conference have been regularly published by Southern Illinois University, edited by James Redden.

For years, Margaret longed to compile the enormous amount of lexical data coming out of Yuman studies into a comparative dictionary. But the handling of this vast quantity of material was almost impossible until computer technology reached a certain level of advancement. Eventually, Margaret took a course in UNIX, which provided her with the necessary tools for the project. Once more, NSF provided her with the means to gather the energies of a large group of Yumanists. She designed a group project which has resulted in the compilation of virtually all available lexical data, and is now well advanced toward her goal of producing an extensive and sophisticated comparative dictionary of Yuman languages. This is in spite of the fact that she has had the extra work of chairing the department of linguistics during most of the project.

One other thread in Margaret's career has been work with Diegueño communities on language revival. Margaret taught classes on the Diegueño language with Ted Couro and Christina Hutcheson, and worked with several Indian communities around San Diego County on community language classes. There was an exciting period in the late '70's when Indian communities were first becoming interested in language maintenance and revival, and there was government money available to fund programs. Margaret and her students worked with Ted and Christina to produce the pedagogical grammar and dictionary of Diegueño, mentioned above, for community use. There were periods when Margaret would travel to a different reservation every night of the week, to help out with local programs. There was a Luiseño class, a Cupeño class, a Diegueño class in Escondido, and one at Barona. Margaret assisted at all of these after a full day at the University, often having to drive 40 miles or more each way -- and had the spirit and stamina to enjoy herself fully.

Margaret has always retained a close personal relationship with many Diegueños. She and her family faithfully attend fiestas and other Indian gatherings, sometimes bringing students along too. Parties at Margaret's house have always been memorable for their cultural diversity, and often enlivened by Diegueño singing, dancing, and the exciting traditional handgame, *peon*. With her family and students, Margaret has also travelled to Indian communities in Baja California, and maintains friendships there as well.

Margaret has often said that the ultimate joy in her academic career is her students. She views her students as a source that allows continued mutual learning, and finds great joy in their fieldwork, linguistic insights, and academic achievements. Far beyond her courses, Margaret shares herself on a deep and personal level with her students, and provides them with friendship and warm moral support, both during their student careers and throughout their lives afterwards. Her generous companionship, coupled by her passion for Yuman languages, have inspired many students to enter the field.

In 1988, Margaret was invited as a visiting fellow at the Australian National University, and in summer 1989, she was the Sapir Professor at the Linguistic Society of America Summer Institute. Through her own excellent scholarship and her influence on her students and colleagues, she is recognized by all as the undisputed leader in Yuman studies.

## Publications of Margaret Langdon

1964 (as Margaret Hoffman) 'A general linguist's view of word formation in Middle French', *Romance Philology* 18:54-63.

1966 Review of R. Valin, *La Méthode Comparative en Linguistique Historique et en Psychomécanique du Langage*, IJAL 32:410-412. 1966.

1968 'Pronunciation Guide', in *The autobiography of Delfina Cuero* by Florence C. Shipek, pp. 19-20. Dawson's Book Shop.

1968 'The Proto-Yuman demonstrative system', *Folia Linguistica* 2:61-81.

1969 (Y. Malkiel and M. Langdon) 'History and histories of Linguistics, *Romance Philology* 22:529-574.

1970 *A grammar of Diegueño: the Mesa Grande dialect.* University of California Publications in Linguistics 66.

1970 'Review of A.C. Wares, *A comparative study of Yuman consonantism*, *Language* 46:533-544.

1971 'Sound symbolism in Yuman languages", *Studies in American Indian Languages.* University of California publications in Linguistics 65:149-173.

1974 Introduction and notes to *Dictionary of Mesa Grande Diegueño*, by Ted Couro and Christina Hutcheson. Malki Museum Press.

1974 *Comparative Hokan-Coahuiltecan Studies, a survey and appraisal* Janua Linguarum, Series Critica, 4. Mouton and Co. 1974.

1975 (T. Couro and M. Langdon) *Let's talk 'Iipay Aa (an Introduction to Mesa Grande Diegueño).* Banning, California: Malki Museum Press.

1975 'Boundaries and lenition in Yuman languages', IJAL 41:218-233.

1975 'Kamia and Kumeyaay: a linguistic perspective', *Journal of California anthropology* 2:64-70.

1975 'Fragment of traditional Diegueño funerary oration', *Journal of California anthropology* 2:5.

1975 'American Indian languages and linguistic theory symposium: concluding remarks', IJAL 41:69-71.

1976 (M. Langdon and S. Silver, eds.) *Hokan Studies--Papers from the first conference on Hokan languages.* Janua Linguarum, Series Practica 181. Mouton and Co.

1976 (ed.) *Yuman Texts. IJAL -- Native American Text Series*, Vol. 1, No. 3.

1976 Discussion of 'Theoretical linguistics in relation to American Indian communities', by Kenneth Hale. *American Indian languages and American linguistics*, ed. by Wallace L. Chafe, pp. 51-58. Peter de Ridder Press.

1976 'The Proto-Yuman vowel system', in *Hokan Studies.* Janua Linguarum, Series Practica 181, pp. 129-148. Mouton and Co.

1976 (L. Hinton and M. Langdon) 'Object-subject pronominal prefixes in La Huerta Diegueño', in *Hokan Studies.* Janua Linguarum, Series Practica 181, pp. 113-128. Mouton and Co. 1976.

1976 'Syntactic diversity in Diegueño', *Southern Illinois University Museum Studies* 7:1-9.

1976 'The story of Eagle's nest: a Diegueño text', in *Yuman Texts, IJAL-NATS* 1:3:113-133.

Reprinted in *Spirit Mountain: an anthology of Yuman story and song*, ed. by L. Hinton and L. J. Watahomigie. Sun Tracks and the University of Arizona Press. pp. 235-245. 1984.

1976 'Metathesis in Yuman languages', *Language* 52:866-883.

1977 'Stress, length, and pitch in Yuman languages', in *Studies in Stress and Accent*, ed. by L. Hyman. Southern California Occasional papers in Linguistics, 4:239-259.

1977 'Syntactic change and SOV structure: the Yuman case', in *Mechanisms of syntactic change,* ed. by C. Li, pp. 255-290 University of Texas Press.

1977 'Yuman (Kwtsaan) after 40 years', in *Southern Illinois University Museum studies* 11:43-51.

1977 'The semantics and syntax of expressive "say" constructions in Yuman', in *Proceedings of the 3rd annual meeting of the Berkeley Linguistic Society*, BLS 3:1-11.

1978 (editor) *Journal of California Anthropology Papers in Linguistics.*

1978 Review of S. McLendon, *A grammar of Eastern Pomo. Language* 54:218-221.

1978 'Auxiliary verb constructions in Yuman', *Proceedings of the 1977 Hokan-Yuman Workshop, SIU Occasional Papers on Linguistics* 2.33-42.

1978 'Animal talk in Cocopa', *IJAL* 44:10-16.

1978 'The origin of possession markers in Yuman', *Proceedings of the 1977 Hokan-Yuman Workshop, SIU Occasional Papers on Linguistics* 2.33-42.

1979 (editor) *Journal of California Anthropology Papers in Linguistics, Vol. 1.*

1979 'Some thoughts on Hokan with particular reference to Pomo and Yuman', in *The Languages of Native America,* ed. by Lyle Campbell and Marianne Mithun, pp. 562-649. Austin and London: University of Texas Press.

1979 (M. Langdon and P. Munro) 'Subject and (Switch-) Reference in Yuman', *Folia Linguistica* 13:321-344.

1980 (K. Klar, M. Langdon, and S. Silver, eds) *American Indian and Indoeuropean Studies, Papers in Honor of Madison S. Beeler.* The Hague-Paris-New York: Mouton.

1980 (M. Langdon and P. Munro) 'Yuman Numerals', *American Indian and Indoeuropean Studies, Papers in honor of Madison S. Beeler,* edited by K. Klar, M. Langdon and S. Silver, pp. 121-135. The Hague-Paris-New York: Mouton.

1980 (editor) *Journal of California Anthropology Papers in Linguistics, Vol. 2.*

1981 (editor) *Journal of California Anthropology Papers in Linguistics, Vol. 3.*

1984 Review of *Hualapai Reference Grammar,* by Lucille J. Watahomigie, Jorigine Bender, Akira Yamamoto et al., *Language* 60:681-682.

1984 (L. Hinton and M. Langdon) Section on Diegueño literature, in *Spirit Mountain: An Anthology of Yuman Story and Song,* ed. by L. Hinton and L. J. Watahomigie. Sun Tracks and the University of Arizona Press. pp. 225-252.

1984 (M. Langdon and T. Couro) 'The flute player' (a Diegueño text), in *Spirit Mountain: an Anthology of Yuman Story and Song,* ed. by L. Hinton and L. J. Watahomigie. Sun Tracks and the University of Arizona Press. pp. 233-234.

1984 (M. Langdon and S. Silver) 'California t/ʈ', in *Journal of California and Great Basin Anthropology Papers in Linguistics,* 4:139-165.

1984 editor, *Journal of California and Great Basin Anthropology Papers in Linguistics,* Vol. 4.

1985 'Yuman "and"', *International Journal of American Linguistics,* 51:491-494.

1985 'Did Proto-Yuman Have a Prefix *a:-?', in *Studia Linguistica Diachronica et Synchronica,* ed. by Ursula Pieper and Gerhard Slickel. Mouton de Gruyter: Berlin-New York-Amsterdam. pp. 503-517. 1985.

1986 Review of W. Bright, *Bibliography of the languages of Native California including closely related languages of adjacent areas.* Metuchen, N.J. and London: The Scarecrow Press, 1982. *International Journal of American Linguistics,* 52. 85-87.

1986 Obituary: A.M. Halpern (1914-1985). *Newsletter of the Society for the Study of the Indigenous Languages of the Americas,* Vol. 1, pp. 2-3.

1986 'Hokan-Siouan Revisited', in *New Perspectives in Language, Culture and Personality* (Proceedings of the Edward Sapir Centenary Conference, Ottawa, 1-3 Oct. 1984) Ed. by W. Cowan, M.K. Foster, and K. Koerner, pp. 111-146. Amsterdam/Philadelphia: John Benjamins Publishing Co.

1986 Review of W. Bright, ed. *Coyote Stories. IJAL Native American Text Series, Monograph No. 1.* University of Chicago Press. 1978. *American Indian Culture and Research Journal,* 8:88-89.

1987 Review of W. Bright, *Bibliography of the languages of Native California including closely related languages of adjacent areas.* Metuchen, N.J. and London: The Scarecrow Press, 1982. Reviewed in *International Journal of American Linguistics,* 52. 85-87. *American Indian Culture and Research Journal,* 9:74-76.

1987 Review article of *Phonology in the Twentieth Century* by Steven R. Anderson. Univ. of Chicago Press, 1985. *Phonology Yearbook,* 4:281-289.

1988 'Number suppletion in Yuman', in *In Honor of Mary Haas,* ed. by William Shipley, pp. 483-496. Mouton de Gruyter.

1989 'Vowel ablaut and its functions in Yuman', in *General and Amerindian Ethnolinguistics--in Remembrance of Stanley Newman.* ed. by M.R. Key and H.M. Hoenigswald, pp. 219-228. Mouton de Gruyter.

1990 'Morphosyntax and problems of reconstruction in Yuman and Hokan', in *Linguistic change and reconstruction methodology.* ed. by Philip Baldi, pp. 57-72. Trends in Linguistics, Studies and Monographs 45. Mouton de Gruyter.

1990 (M. Langdon and Leanne Hinton) 'Homophonous versus polysemous roots: remarks on the semantic structure of the Proto-Yuman Lexicon,' in *Papers from the 1989 Hokan-Penutian Languages Workshop.'* University of Oregon Papers in Linguistics 2, pp. 28-40.

1990 Diegueño: How many languages? in Proceedings of the 1990 Hokan-Penutian Languages Workshop, Occasional Papers on Linguistics 15 (184-190), ed. by James E. Redden

1991 Pronunciation Guide, in Delfina Cuero: Her autobiography. An account of her last years and her ethnobotanical contributions, by Florence C. Shipek. Ballena Press Anthropological Papers 37:19-20 (new edition)

1991 Yuman Plurals: from derivation to inflection to noun agreement. Linguistic Notes from La Jolla 16:54-70 [Note: a much modifed version of this is to appear in IJAL in 1992]

1991 Yuman predicate nominals revisited. in *A Festschrift for William F. Shipley*, ed. by S. Chung and J. Hankamer. UCSC Syntax Research Center.

in press (co-editor and compiler) *Barona Tribal Dictionary.* Lakeside, CA.: Barona Tribal Council.

to appear 'Noise words in Guarani', in *Studies in Sound Symbolism,* ed. by Leanne Hinton, Johanna Nichols and John Ohala. Cambridge University Press, forthcoming.

to appear 'Yuman plurals: from derivation to inflection to noun agreement', in *Linguistic notes from La Jolla.*

to appear Review of Bright, ed. The Collected Works of Edward Sapir American Indian Langugages I. Berlin & New York: Mouton de Gruyter 1990. to appear in American Indian Quarterly.

ms *Comparative dictionary of the Yuman languages.* Preliminary version, 1989.

ms *Yuma-English, English-Yuma dictionary.* 1989.

# John P. Harrington's Phonetic Representations of Obispeño Chumash Palatal Consonants[1]

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John P. Harrington worked with the last speaker of Obispeño Chumash, Mrs. Rosario Cooper of Arroyo Grande, California, first in a brief encounter in the middle of 1912, and then during longer field sessions in 1914, 1915, and 1916. During this same period, he was desperately trying to salvage all the information he could from several speakers of other Chumash languages, notably Fernando Librado, and could not spend as much time with Mrs. Cooper as he probably would have liked. In his work with Mrs. Cooper, he employed his usual method at this time of taking down field information quickly on full-size sheets of foolscap, then slipfiling and cross-referencing it at what one might (if it were not Harrington we were dealing with) call his leisure; i.e. during those times when he was unable to be actively in the field collecting more information.

We have no evidence which comes for certain from Harrington's first brief contact with Mrs. Cooper in 1912. We have thousands of slipfiles (representing hundreds of cross-referenced lexical and grammatical items) from the 1914 and 1915 field trips (the originals were either destroyed or lost). There is also a bundle of several thousand foolscap sheets of forms collected in 1916, but never slipfiled. In this paper I wish to do no more than point out one feature of the orthography of Obispeño which I believe to be unique or nearly so in Harrington's--or anyone's--inventory of phonetic symbols.

All Chumash languages have palatal consonants: [ š ] and [ č ] (plain, aspirated, glottalized) are common to all dialects. But only Obispeño has in addition a sound which I have decided to write [ $t^y$ ] ("palatalized t"). Before coming to Obispeño, Harrington had been working with Ventureño and Cruzeño; in neither would he have encountered "palatalized t". Nor did I expect to encounter such a sound when I began working with Obispeño in the early 1970s.

As I began copying out Mrs. Cooper's words from the 1914-15 slipfiles, I encountered what I thought were variant representations of the palatal affricate [ č ], and I transliterated them as such. The variants look like this: [tſ], [tſ]. Additionally, in the 1916 notes, for [tſ], he sometimes wrote [ tʸ ] (see above, where I have adopted this practice).

Soon, however, as I proceeded to analyze the forms and to attempt to proto-Chumash reconstructions, I began to encounter problems which made such reconstructions of the stop series virtually impossible. So I went back to the notes (the 1916 ones are particularly helpful here), and it suddenly struck me that Harrington had indeed intended to differentiate between two sounds by writing the top loop of the "long s" at two different heights. Perhaps Harrington developed this orthographically minimal pair to satisfy some aesthetic consideration; two sounds which were barely distinguishable auditorily ought to be visually similar as well. [ tſ ] stood (as one would expect) for [ č ] ; [ tſ ] stood for [ tʸ ]. Armed with this insight, I tackled the cognate sets again, and they mostly fell into place.

It turned out, moreover, that Harrington sometimes recorded a variant of the [ tſ ] ("t-short long s") with the digraph [ kš ] or [ kſ ]. Further comparative analysis led to the hypothesis that Mrs. Cooper was reporting forms from two dialects of Obispeño, something never before noted in the literature. (This hypothesis has, happily, been given support from the genealogical research of John Johnson and the marriage network research of Chester King; a fuller statement on this is forthcoming.)

Although it is difficult to demonstrate it here without being able to photographically reproduce samples of the slipfiles and original fieldnotes, I would like to say that the amount of rechecking Harrington did of these forms in succeeding years suggests that his ear was not at all accustomed to such fine palatal gradations, not only because of a possible prejudice produced as a result of his previous intensive field experience with other Chumash dialects; but because of the rich dialect variants he was unknowingly recording within Obispeño itself. And there are enough inconsistencies in the recordings from each of the three years to make it apparent that he never became entirely comfortable with the sounds. Unfortunately, Mrs. Cooper died in 1917, and Harrington was not able to continue sorting the palatal consonants out. A brief grammatical sketch of Obispeño (date unknown) in a fair copy in Harrington's hand (presumably done to convince his Smithsonian superiors that he was doing productive and publishable research) shows many inconsistencies.

Much remains yet to be done in the historical phonology of Chumash dialects. Harrington's attempt to represent honestly what he heard has, despite some remaining confusion, led already to the discovery of two dialects where only one had been known previously, and has enabled us to posit that proto-Chumash had two palatal/front velar stops (I call them *$k_1$ and *$k_2$). This is testimony to the value of Harrington's nitpicking perfectionism; and also a caveat for the rest of us to beware of assuming that something is inconsequential simply because it is idiosyncratic.[2]

## Notes

1. This paper has been exhaustively rewritten since the Harrington Conference in June 1992. The oral presentation was accompanied by a hefty set of photocopies which could not be reproduced here. The overall intent and conclusions remain unchanged.

2. At the Harrington Conference, Alice Anderton's paper (q.v.) alluded to a similarly confused situation for the representation of palatal and retroflex consonants in Kitanemük. In a note which I received shortly after the Conference, Bill Bright commented that he recalled that in Harrington's Juaneño/Luiseño notes a similarly confused situation obtained. It is easy to assume that because of Harrington's later reputation for accuracy, we can always rely implicitly upon his transcriptions. I think we must temper this judgment with what we actually know of his inconsistencies and difficulties in these early years. In this way, his recordings become even more valuable as unique records of Native languages.

# THE VOCABULARIES OF SCOULER, TOLMIE AND COULTER: A REAPPRAISAL*

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## ABSTRACT

In this paper I discuss the collections of vocabularies from the West Coast of the present-day United States and Canada assembled by William Fraser Tolmie and Thomas Coulter and published by John Scouler (Scouler 1841). I outline the background of the collectors and the editor, the contents and scope of the vocabularies, and examine the work of Thomas Coulter in more detail, presenting a preliminary analysis of his vocabularies in Native Californian languages in the light of more accurately-recorded data for the languages which he collected.

## 0. Introduction.

The seventeen vocabularies of Salishan and other Northwestern languages collected after 1833 by William Fraser Tolmie, and the seven vocabularies of languages of California and the Colorado River collected by Dr Thomas Coulter, were published in 1841 by Dr John Scouler. They immediately attracted the interest of workers on Native Western North American languages. Gallatin (1848) drew on them and on Hale (1846) for data on languages west of the Rockies; the British ethnologist Robert Gordon Latham inspected them (eg. Latham 1854), and John Peabody Harrington made a point of reeliciting the Coulter vocabularies in the course of work with several Californian groups.

In a way the early interest in these vocabularies is not surprising; there was little material in print on languages west of the Rockies. Although abundant materials had been collected for several of these, especially in California, it mostly remained unknown and in manuscript. The main interest of armchair students of Native American languages at that time lay in classification of these languages, and it was generally felt that a good first attempt toward this could be made by comparing lists of words. Hale (1846) was to provide grammatical information on a number of North American languages, such as Sahaptin and Chinook, but he also provided vocabularies arranged in columns so that similarities and differences between words used in the various languages for a concept could be seen at a glance. The vocabularies under discussion were published by Scouler at about the time - 1841 - when Hale was conducting primary fieldwork in Oregon and California, using in his work a fair attempt at a phonetically-adequate alphabet which would highlight the faulty transcription of the material under discussion. Hale's work was not published until five years later, and its findings were largely popularised in Gallatin (1848); this was fortunate, since Hale's book was never widely available. The two bodies of material - Scouler's and Hale's - complemented each other.

Many of the languages for which Scouler published wordlists had not been seen in print before, and in some cases the data published were the first collected for a language. To the best of my knowledge, Scouler was the first to publish any Upper Umpqua material, the first to publish comparative vocabularies of more than two Salishan languages (making available vocabularies of Bella Coola, Cowichan, Lower Chehalis, Clallam, Nisqually, and Okanagon), and the first to publish comparative lists of Kalapuyan (Central and Southern Kalapuya) and Sahaptian languages (Klikitat and Northern Sahaptin). The Californian lists published by Scouler and taken from Coulter's notes were almost certainly the first published material on Diegueño (quite possibly the first Yuman vocabulary ever collected and published), Juaneño, Gabrielino, Antoniaño Salinan and Obispeño Chumash, and some of the earliest published material on Pima and Barbareño Chumash.

I shall concentrate on Coulter's materials, since they deal with languages with which I am slightly more familiar. In addition, they show a level of phonetic accuracy (or at least a striving towards accuracy) which was then denied to Tolmie. It should be remembered that Coulter's materials were probably collected on the hoof, as it were, within the space of a few weeks, whereas Tolmie had the advantages of having spent several years living in proximity to Indians of various tribes as a trader, of having some first-hand knowledge of Haida and maybe other languages, and of gaining the Indians' affection and respect. Indeed Tolmie never left British Columbia, serving its Legislative Assembly, while his son Simon Fraser Tolmie was (a notably ineffective) Premier of British Columbia in the late 1920s. However, Coulter's materials, though much more accurate, are far less extensive than Tolmie's material, about which a few words are also in order.

## 1. Dr. John Scouler.

John Scouler, who was born in Glasgow on 31 December 1804 and who died in Glasgow on 13 November 1871, was by training a doctor and by profession a geographer, mineralogist and botanist who studied medicine at the University of Glasgow, gaining his MD in 1827, and at the Jardin des Plantes, Paris. He visited the Columbia River from April to September 1825 as a ship's surgeon on the Hudson's Bay Company ship *William and Mary*, in the company of the renowned Scottish botanist David Douglas (1799-1834), and later served as professor of mineralogy first at the Andersonian Institute, Glasgow, and (from 1834 to 1854) to the Royal Dublin Society, gaining his LLD in 1850. He was thus in an excellent position to draw upon and benefit from information which Tolmie and Coulter could provide, though there is no evidence that he himself collected any linguistic materials during his stay at the Columbia River. His achievements were eminent enough for him to have a genus of plants, Scouleria, and a mineral, scoulerite, named after himself. For further details of his life see Woodward (1897).

The title refers to Scouler's vocabularies, but really they are not his at all; his contribution lies in transcription (and misreading!), redaction and publication. Scouler had indeed spent time in Oregon, as had Douglas, but neither apparently collected any vocabularies while there. His role in the work was that of middleman, a geographer, botanist and mineralogist and a member of learned societies, who knew Thomas Coulter well, after the latter's return to Dublin, and who, like Tolmie, had worked for the Hudson Bay Company. The unifying feature which these three men shared was their interest in, and contribution to, the science of botany: all three were enthusiastic collectors of plants, Coulter being especially eminent. Scouler, with access to learned bodies in London, was well placed to make known the linguistic findings of his friends and to bring them to the attention of the scientific world.

Scouler's contribution to the material is largely confined to some ethnographic observations (ibid. 215 - 229), which are of historiographical interest alone, as they illustrate a now discredited scientific paradigm, for example viewing the Haidas as superior to the other Indians of the Northwest because thei appetite for imported European luxuries indicates that they are making steps towards self-improvement (ibid. 219), and showing considerable interest in the practice among the "Nootka-Columbians" of head-flattening (ibid. 221-222). Proceeding from the linguistic evidence before him, he suggests that there is evidence for a migration from northwest to southeast because of the distribution of what he sees as related words among the various languages along this axis (ibid. 229).

His linguistic ideas seem to the modern observer to be almost astoundingiky naïve: on linguistic grounds, he divides the tribes of the Northwest into two groups, the Insular, with a northern branch which includes Tlingit, Haida and Tsimshian, and a southern or Nootka-Columbian branch, which includes what we would regard as Wakashan and Salishan languages, and the Inland, also with two branches, one of which comprises the Sahaptian languages and (Salishan) Okanagon, and the other including Central and Yonkalla Kalapuya and the Athapaskan Umpqua, about which he observes that it is rather more different from Central Kalapuya than Yonkalla Kalapuya is! His general premise is that the languages of the Northwest are mixtures, in various proportions, of at most no more than two original languages, and among his "mixed languages" he includes Cowichan (a mixture of "Shahaptian" and Nootkan), and "Cathlascon" (Chinook), which he views as a mixture of Kalapuya and Nootkan (this claim is even more outlandish when one remembers that he is **not** talking about Chinook Jargon, which has a couple of dozen words from Nootka and a small number from Kalapuya). An interesting sidelight is provided by his discussion of a quaternary system of counting, of which he recognises elements in Sahaptian, Salishan and several Californian languages, including Diegueño, Gabrielino and Chumashan. The parallel between these numeral systems is interesting: quaternary counting occurs in Yuki and the Athapaskan Kato (which may have borrowed it from Yuki) as well as Chumashan and Salinan (Dixon and Kroeber 1907), though to my knowledge nobody has attempted to group together Yuki and Salinan, for instance.

## 2. William Fraser Tolmie.

William Fraser Tolmie, who was born in Inverness, Scotland on 3 February 1812, and who died in Victoria, British Columbia on 8 December 1886 (Lamb 1985), was a surgeon, botanical observer and furtrader with the Hudson's Bay Company (which he joined in 1833; Scouler 1841: 217 says that Tolmie had then lived eight years on the Northwest Coast). He worked at several northern HBC posts before settling at Fort Nisqually from 1843 until 1857, and furnished Scouler with data on the Haidas, Tsimshians and Heiltsuks.

Tolmie's data comprise three groups (Heiltsuk - Tlingit, Klikitat - Umpqua, Cowichan - Lower Chinook) of slightly differing word and phrase lists of about 140 words in length. His materials are mostly of historical interest as in many cases they are the first attestations in print of a particular language. They cannot compare either in size or in scope with his later work in Tolmie and Dawson (1884), for which most of the material was collected in the 1830s and 1840s. That he was soon aware of the complicated linguistic situation in the area is shown by an early observation of his on Haida, which was the language spoken in the location of his first major posting with the Hudson Bay Company. He mentions [1] the use there of a Haida-English pidgin in trade in central coastal British Columbia in the 1830s, north of the area where Chinook Jargon had then reached. Presumably he was conversant with Chinook Jargon by then (and he certainly knew the language at some stage of his life), but he has not provided us with a vocabulary of it in this collection.

His orthography is rough-and-ready, with few diacritics, and showing the imprint of Scots usage; thus <ch> is employed in writing velar fricatives. Though his transcriptions are poor, there are features, such as the presence of both /m n/ and the stops /b d/ in Tolmie's Coast Salish Squallyamish vocabulary, which suggest that a closer study of some of the lists by people expert in the languages might have something to contribute to the study of historical aspects of Northwestern Languages.

With valuable assistance from M. Dale Kinkade and William W. Elmendorf, I have identified Tolmie's seventeen vocabularies below, and the number of entries they contain are in the right-hand column [2]:

| Tolmie's Name | Modern Name | Words |
|---|---|---|
| Haeeltzuk | Heiltsuk | 134 |
| Billechoola | Nuxalk (Bella Coola) | 130 |
| Chimmesyan | Coast Tsimshian | 135 |
| Haida | (Kaigani?) Haida | 112 |
| Ton Ghasse | Tongass Tlingit | 53 |
| Kliketat | Klikitat Sahaptin | 109 |
| Shahaptan, or Nez Percés | Northern Sahaptin (not Nez Perce) | 82 |
| Okanagan | Okanagan | 84 |
| Kalapooiah | Central Kalapuya | 93 |
| Yamkallie | Southern Kalapuya (Yonkalla) | 93 |
| Umpqua | Upper Umpqua (Athapaskan) | 111 |
| Kawitchen | Cowichan | 105 |
| Tlaoquatch | Nootka (Nuuchahnulth) | 106 |
| Noosdalum | Clallam | 97 |
| Squallyamish | Nisqually | 96 |
| Cheenook | Lower Chehalis | 104 |
| Cathlascon (Cathlascou?) | Lower Chinook | 99 |

Scouler evidently had some trouble making out Tolmie's handwriting, and there are a number of alternative readings and some clear errors in Scouler's printed version (such as Cathlascon <Sakit> "four", apparently for <Lakit> (cf. Chinook proper and Chinook Jargon /lákit/, which should be borne in mind when using the vocabularies.

### 3. Dr. Thomas Coulter.

Dr. Thomas Coulter, who was born in Dundalk on 28 September 1793, and who died in Dublin on 28 November 1843 was an Irish physician and botanist. After studying at Trinity College, Dublin, the Jardin des Plantes in Paris and later under the great botanist Augustin-Pyramus de Candolle in Geneva, he spent seven years in various parts of Mexico working as a physician for a mining company, but also engaging in business and continuing his botanical researches, and he lived in California from late 1831 to 1835 (Klar 1980: 113 states that Coulter's Obispeño Chumash vocabulary was collected in "about 1832"). His scientific contributions are mostly to botany, though he published very little: however, he wrote the first taxonomic monograph on the Dipsacaceae (a genus of plants which includes the teasels, scabious and honeysuckle), "Mémoire sur les Dipsacées" (published in Geneva in 1823 by J. J. Paschoud), while the big-cone pine, native to the Southwestern United States and distinguished by pinecones 22-37 cm in length, is known as Coulter's pine or the Coulter pine, and its botanical name is Pinus coulteri; the Californian tree poppy or matilija, is known for Coulter and his friend Thomas Romney Robinson as Romneya coulteri. He wrote a paper about his 1832 journey from Monterey to the

Colorado River, published in abbreviated form as Coulter (1835). Scouler's period of employment in Dublin and his connection with the Royal Dublin Society is presumably the means by which he came to know Coulter.

Coulter recorded short wordlists of seven languages, in vocabularies ranging from 46 to 61 entries. His recording of Antoniaño Salinan is the fullest (a word is provided for every English gloss). It is likely that these vocabularies were collected during a journey in 1832, beginning on 20 March from Monterey, stopping at Santa Barbara, San Gabriel, San Antonio de Pala and reaching Yuma on 8 May, returning to Monterey on 19 July: if they were all collected during his voyage down the Colorado, one likely order is Salinan-Obispeño-Barbareño-Gabrielino-Juaneño-Diegueño-Pima.

| | | |
|---|---|---|
| Pima | O'odham (Piman) | 46 |
| San Diego | Diegueño (mostly 'Iipay; Yuman) | 48 |
| San Juan Capistrano | Juaneño (Takic: Cupan) [3] | 48 |
| San Gabriel | Gabrielino (Takic) [3] | 48 |
| Santa Barbara | Barbareño Chumash | 47 |
| San Luis Obispo | Obispeño Chumash | 46 |
| San Antonio | Antoniaño Salinan | 61 |

Coulter's orientation was different from Tolmie's: for Tolmie, the languages which he recorded were essential means of communication, since most of the peoples he dealt with could be approached only via Haida pidgin or Chinook Jargon at best. For Coulter it was different; there was a lingua franca in the area, namely Spanish, which (like French and probably Irish) he spoke fluently; the missions ensured that the Indians learn some Spanish by their demand that the neophytes pray and confess in Spanish, and it is not surprising that his transcriptions of Indian languages were influenced by Spanish, thus for instance his use of <j> for /x/ and the n with tilde for /ɲ/ in some transcription.

Coulter set out to describe what he heard in a manner as scientific as he could attain, and even if he was stymied by the lack of a reliable phonetic alphabet, and thus relied on his own ad hoc system, he nonetheless noted down what he heard with some fidelity. Thus his recording of the numeral system of Barbareño and Obispeño Chumash stops at sixteen, which was the highest number in their quaternary system, before the system, at least in the case of Barbareño, was supplemented by Spanish loans [4]. Over at Mission San Antonio, the impact of Spanish language and counting practices was stronger, and a decimal system, based on inherited elements, was evolving, and he was able to record a word for "twenty".

Coulter's material consists of the numerals one through sixteen, and twenty, a number of nouns, mostly natural phenomena, designations for humans, and kinship terms, and some adjectives. The entries in his vocabulary are quite similar to those one might find in any test vocabulary of the time, though with a few surprising omissions, such as the word for "fire" (the word for "light" he gathered for several of the languages is actually the word for "fire"; presumably he did his collecting at night, by the light of a campfire), or for "eye", though "ear" is represented, and a complete absence of any verbs.

Only the Salinan list is fully completed, with forms being provided for all sixty-one entries. The other languages are represented by lists of forty-six to forty-eight entries, but gaps in the list are not predictable: only the Salinan list contains a word for twenty, and words for "much, little, strong, sky" are missing from a majority of the lists. By all appearances, he had drawn up the list beforehand and was successful in getting it filled at San Antonio, while in general the number of entries filled in decreased, the further southeast he went.

The forms he gives are citation forms, and often with affixes, articles or absolutives attached. Thus the Gabrielino words for "friend" and "enemy" include a first person singular prefix which partly masks the cognacy between the modern Luiseño and Gabrielino words for "enemy", while some of the words for body parts in the same list have the third person singular prefix /a-/, while the word for "arrow" contains a prefix of unidentified significance, and many words end in the absolutive suffix /-r/. Understandably Coulter did not control the morphology of the languages he excerpted. As the Gabrielino forms for "six" and "father" show when compared with later recordings, Coulter's best efforts could be distorted by misreadings on Scouler's part (thus <t> for <v> in "six", and <m> for <n> in "father"), or by later printing errors.

Coulter does not specify the details of his orthography, although there is a remark (Scouler 1841: 250), made by the then Editor of the Journal of the Royal Geographical Society, Rev. J. C. Renouard, that <x> represents "*kh*", in other words /x/. Nonetheless some equivalences can be discerned. The orthographies used for the various languages show a certain degree of variation, thus <c> is sometimes used for /k/ in the Diegueño and Pima vocabularies, thus Diegueño <Xamoc> for /xamúk/ "three", but in other languages <k> is always employed; similarly both <x> and <j> are used in the Salinan vocabulary for /x/, while <ñ> (apparently a misreading of handwritten <ñ>?) is used for /ɲ/ in the Diegueño vocabulary but not elsewhere. He usually heard the retroflex stop in Salinan and wrote it <tr>. With a very few exceptions, such as the intrusive <p> in Barbareño <Hekiampnin> "body" (cf. modern /'a'min/, he does not seem to have picked up on the feature of glottalisation, or at least on a way of representing it systematically. He does, however, seem to have apprehended the interdental fricative /ḍ/ in Pima as /t/, as a speaker of Hiberno-English might (and Coulter is known to have had an Irish brogue: Nelson 1988: 17) so the Pima word for "heart", /iibḍag/, is written <Īpŏtŭk>.

Regarding the representation of vowels, Coulter uses diacritics far more frequently in the Pima, Diegueño, Juaneño and Gabrielino vocabularies than in the Chumashan or Salinan vocabularies. His forms with breves indicate short vowels (his <ŭ> is /u/ rather than /ə/, as one might expect for a speaker of Hiberno-English). while macrons indicate long vowels, as do doubled vowels, especially <uu> and <aa>, though <aa> can represent /ee/ as well as /aa/; this can be seen from the entries for "house" and "heart" in the Salinan vocabulary. A majority of vowels bear no mark at all. Apparently <ô> and <å> represent /ɔ/, while his digraph <eu> is an attempt to represent the high central vowel /ɨ/. It would seem that Coulter experimented with suitable orthographies for writing down the words he heard, and wavered between extensive use of diacritics and greater reliance on digraphs. Nonetheless, it should be remembered that Coulter's Gabrielino vocabulary, for instance, contains more allophonic phonetic detail than is found in some other Gabrielino sources, such as Hale (1846), and the vocabularies of A. L. Kroeber (1907: 71-89; 1909: 251-253).

As to material of directly lexical interest in the vocabularies, there is the Salinan numeral system, which Dixon and Kroeber were later to incorporate in their article on the numeral systems of California, and an early and otherwise unattested Diegueño form for "eight", <Tchapap-tchapap>, which is simply his numeral for "four" repeated, and which inspired Scouler to his discussion of quaternary counting among farflung tribes of the Northwest Coast. His record of Gabrielino is valuable not least because of the scantiness and poor quality of the material that was otherwise available on it: given that less than 150 years ago the language was the lingua franca of Los Angeles, it has yet to receive its due, and Coulter's vocabulary was a careful prompt for the more extensive work that J. P. Harrington was to do on it.

## 4. Conclusion.

The Indian vocabularies of Tolmie and Coulter, as edited by Scouler, represent a creditable first attempt by well-meaning amateurs to record a considerable range of languages of the Northeastern Pacific Rim, and for all their sparseness, their middling to poor phonetics, their frequent gaps and the inevitable misreadings that occurred between the manuscript form of the vocabularies and Scouler's redaction of them for publication, as well as the further printing errors and careless omissions that accompanied their incorporation into Gallatin (1848), which brought them to the attention of the wider American ethnological community of the time [5], these lists, especially those collected by Coulter, were well executed according to the standards of the time; they are worthy of our attention, and should not be dismissed until they have been mined for whatever material may be found in them.

## NOTES

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[1] An early posting of Tolmie's was at Fort McLoughlin (Milbanke Sound), in 1833-1834, at the same time as Alexander C. Anderson. Both Anderson (in his "Memorandum respecting Milbank Sound - 3rd January 1834", an unpublished document in the Public Archives of British Columbia) and Tolmie (in letters to Judge James Swan, dated at Victoria, December 30, 1878 and July 6, 1879) observed that the fur trade in that area was conducted in the 1830's between Haidas, Tsimshians, Heiltsuks and Whites in a jargon composed of Kaigani and "Tshatinni" Haida and English, Chinook Jargon not then being widely known so far north (though even in 1833 it had spread quite far north, as far as "Newity"; these data provided by Bruce Rigsby). Tolmie's second letter speaks of the Haida-English jargon as being for the most part in general disuse in 1879, which suggests that it was in use for several decades in the nineteenth century. It has been pointed out (Grant 1945: 227) that the Haida (who could use Chinook Jargon; see Boas 1933: 209) had only contempt for the language and for those who spoke it.

[2] William W. Elmendorf (personal communication, June 1992) told me that the "Noosdalum" vocabulary is a sample of Clallam, although the name which Tolmie gave it is the Twana name for the Clallams. Aoki (1970: 1) identified the "Nez Perces" vocabulary in Tolmie and Dawson 1884 as Northern Sahaptin, as presumably is the one in Scouler 1841.

[3] L. Frank Manriquez told me in June 1992 that she and other descendants of the missionised inhabitants of San Juan Capistrano and San Gabriel nowadays refer to themselves as Ajachmem and Tongva respectively.

[4] Beeler (1986: 124) has pointed out Coulter's perceptiveness in recording for Barbareño Chumash a traditional numeral system rather than spurious or non-traditional decimal system. This contrasts with what had happened among the Ventureños a generation earlier, whereby a decimal system introduced under Spanish influence was on a twin track with the aboriginal quaternary system (see Beeler 1986: 111-114 for details).

[5] Gallatin 1848, an amalgamation of linguistic material from Hale (1846) and sundry other sources, including Scouler (1841), reproduces the Coulter vocabularies (ibid. 129), omitting the Juaneño and Gabrielino lists, incorporating misprints and omitting words as well as all accents over vowels. Errors in Scouler (1841) are compounded in Gallatin's copy. See Poser (1992: 204) for an account of Gallatin's errors in the Salinan list.

## APPENDIX: THOMAS COULTER'S INDIAN VOCABULARIES: A PRELIMINARY REDACTION.

In the interest of making a portion of Scouler's material more widely available, I have provided a transcription of Thomas Coulter's vocabularies, in the sequence in which they were printed in Scouler 1841, and have attempted to provide the modern equivalents of the words insofar as they were available in the sources which I had to hand, and have provided some comments on the transcription, glossing and analysis of the material in Coulter's vocabularies (including some of the errors of understanding he may have made, and also misreadings by Scouler).

### AKIMEL O'ODHAM (PIMA)

| | | |
|---|---|---|
| 1 | Hemăko | /hĭmako/ |
| 2 | Kôôt | /gook/ |
| 3 | Beĭk | /vaik/ |
| 4 | Kiīk | /gi'ik/ |
| 5 | Xĕxtaspe | /hĭtasp/ |
| 6 | Tchŭtep | /čuuḍp/ |
| 7 | Būbăk | /vĭva'ak/ |
| 8 | Kīkīkė | /gigi'[i]ki̲/ |
| 9 | Humukt | /humukt/ |
| 10 | Huistemām | /vĭ sta mam/ |
| 11 | Māātŭ | /maat/ (= one, used in counting) |
| 12 | Kôôhk | [= 2]/ |
| Sun | Tash | /taś/ [= sun, day]; /taśogiḍ/ [= sun] |
| Moon | Maskat | /maśaḍ/ |
| Water | Shōn̄tik | /šuuḍagi/ |
| Sea | Kakatchck | /kakaćk/ (reduplicated /kaaćk/, "sea/lake" |
| River | Ākĕmŭli | /akimĭli̲/ |
| Lake | Vō | /vaak/ "pond, lake" |
| Salt | Ōnă | /ona̲/ |
| Light | Tai | /čuuk/; /tai/ = "fire" |
| Day | Tashimĕt | /taśkaj/; cf. /maḍ/ "progeny" |
| Night | Stuŭkum | archaic /s-tuk-am/ "dark"; modern /s-ćukma/ |
| Cold | Seapit | /s-hĭĭpi-d/ "cold" |
| Hot | Stōn | /toni̲/ |
| Stone | Ĵōtē | /hoḍai/ |
| Mountain | Tôăk | /ḍo'ag/ |
| White | Stoxa | /s-toha/ |
| House | Nihki | /ni-kii/ = "my house" |
| Door | Pūālīt | /pualit/ |
| Bow | N̄ikāt | /ni-gaat/; Scouler's form means "my bow" |
| Arrow | Napot | /hapot/ (typographical error, <n> for <h>) |
| Body | Nionh | /ni-[h]on/ "my body" |
| Chief | Capit | /kapit/ from Spanish; uugću/ |
| Man | Iiuot | SSE /čĭoj/; formerly /tĭot/ |

| | | |
|---|---|---|
| Boy | Āndī | /wiappoi/ |
| Woman | Ūbă | /uvi/ |
| Father | Mook | /-oog/; [m-oog = "thy father"] |
| Mother | Intui | /in-jĭ'ĭ/, archaic /in-dĭ'ĭ/ |
| Brave | Tiuot | /čĭčojim/; the word cited is "man" |
| Bad | Mūmkō | /mumku/ "be sick". |
| Good | Skukit | /kĭĭg/; [s-kĭĭgi-d] |
| Great | Vŏhŏvăkuitch | /baab...../ "great ...." (SSE) |
| Head | Nemŏh | /ni-mo'o/ "my head" |
| Heart | Īpŏtŭk | /iibɖag/ |
| Hand | Noh | /novi/ |
| Ear | Nāānk | /naak/ |

Most of the modern forms are taken from information made available to me by Dr. David L. Shaul in August 1992, which assistance is gratefully acknowledged. Underlined final vowels are devoiced. A few forms marked SSE are taken from Saxton, Saxton and Enos (1983), respelt in Americanist orthography, with /ĭ/ representing the high central vowel spelt by the Saxtons as <e>. Dr. Shaul has pointed out to me that these forms point to a period of time before the palatalisation of /t d n/ before /i u ĭ/ in this particular dialect, as seen in the forms for "hot" and "brave", although evidence that this sound-change was entering the language at the time when Coulter collected his data is afforded by the shape of the numeral "six". Such a palatalisation is shared by Tohono O'odham (Desert People, Papago) and Akimel O'odham (River People, Pima), but Tohono has [w] from proto-Tepiman /v/, while this record preserves [v]; Dr. Shaul therefore suggests that this is Akimel O'odham; this is made more plausible by the fact that Coulter's journey did take him through Northern Pima territory.

The words for "chief", "boy", "bad", and the second part of "big" contain roots not listed in Saxton, Saxton and Enos 1983; the word for "chief" is a loan from Spanish *capitán*. The word for "door" is also a Spanish loan, from *puerto*. The word given as "light" actually means "fire" (Coulter did not include the word "fire" in his gloss-list).

It is apparent that the words listed for "two", "moon" and "man" contain misreadings by Scouler from Coulter's original handwriting, as the cognates in the modern language show, and that they were misread from <Kŏŏk>, <Mashat> and <Tiuot> respectively. Indeed the word given for "brave" is simply a misspelt version of the word for "man".

As is the case with other lists collected by Coulter, several words have affixes attached to them, thus "night", "cold", "hot", "white", "good" bear a prefixed stative /s/, while the words for "house", "bow", "body", "head" have first-person singular possessive prefixes, and "father" has a second-person singular possessive prefix.

## SAN DIEGO (DIEGUEÑO)

|  | Coulter | Langdon |
|---|---|---|
| 1 | Siha | /şin/ |
| 2 | Xahuac | /xəwak/ |
| 3 | Xamoc | /xəmuk/ |
| 4 | Tchapap | /čəpap/ |
| 5 | Xetlacai | /saɬʸ(xə)kaay/ "hand cross over"; modern /saarap/ |
| 6 | Xentchapai | /xin čəpaay/ "one leaning"; modern /xəmxuuk/ (3x2) |
| 7 |  | [pəxkaay] |
| 8 | Tchapap-tchapap | /ćəpap čəpap/; modern /čəpxuuk/ (4 x 2) |
| 9 | Sihntchaha | /şin ća...?/ "one less?", now /xəmxəmuk/ (3 x 3) |
| 10 | Ñamat | /nʸaamal/ "all"; modern /şaaxuk/ |
| 11 | Sihn-noxap | /şin waxap/ "one enters"; modern /şaaxuk may şin/ |
| Sun | Ñā | /'ənʸaa/ |
| Moon | Iătllă | /xəɬʸtaa/ |
| Star | Xllepxuatai | /ɬʸap kʷatay/ "big burn" |
| Earth | Mat | /'əmat/ |
| Water | Xā | /'əxaa/ |
| Sea | Xäsilk | /xaa siɬʸk/ "salty water" |
| Lake | Xā-quatai | /xaa kʷataay/ "big water" |
| Salt | Esii | /əsilʸ/ |
| Day | Na | [= sun] |
| Night | Cŏjoñ | /kuxun/ "that which is night" |
| Cold | Xetchur | /xəčuur/ |
| Stone | Ehuei | /'əwii/ |
| Mountain | Mai | /'əmaay/ |
| White | Umshap | /nʸəmşap - nʸəmśap/ |
| Black | Nillh | /nʸiɬʸ/ |
| House | Ăhuā | /'əwaa/ |
| Door | Huaā | /wa-aa/ "house mouth" |
| Bow | Atimm | /'aatim/ |
| Arrow | Copel | /kuupal; 'əpal/ |
| Body | Ĭmal | /'əmaat/ |
| Chief | Cuaipai | /kʷaaypaay/ |
| Man | Ĕpatch | /'iipać/ |
| Boy | Jacuel | /xəkʷanʸ/ |
| Woman | Seen | /sinʸ/ |
| Father | Mānallĕ | /mənalʸ/ "your father" (archaic) |
| Mother | Patālle | /paatalʸ/ "his mother" |
| Brave | Kanemei | /kuŋəmii/ |
| Bad | Xanō | /xnuu/ "sick" |
| Good | Xan | /xan/ |
| Great | Quatai | /kʷatay/ "the big one" |
| Small | Illmōm | /'əlʸmaam/ |
| Head | Xellta | /xəɬʸtaa/ |

|  |  |  |
|---|---|---|
| Heart | Yatchick | /yačix/ |
| Hand | Ĕshall | /'əšaly/ "my house" |
| Ear | Xiamall | /xəmał/ |
| Friend | Kunehuaia | /kunʸəway/ |
| Enemy | Axua | /'əxwaa/ |

I am indebted to Margaret Langdon for her comments on the Diegueño forms listed here and a discussion and translation of their composition.

To the best of our knowledge this is the earliest wordlist of a language classified as Diegueño, and possibly the earliest Yuman (as distinct from Cochimí) wordlist. There are rather fewer mishearings and misreadings in this list than in most of the others; despite the complex phonology of Diegueño, Coulter made a creditable first attempt at recording it.

As to the matter of the assignment of the list to one or another form of Diegueño, Professor Langdon pointed out that the words for "mother", "brave", "small", and "head" suggest Iipay, while the other words are more reminiscent of Kumeyaay, and she suggests that it is a dialect intermediate between these two. It is somewhat perplexing that the word for "one" suggests Kumeyaay, though the word for "six" contains the element for "one" which is typical of Iipay (is <Siha> an error by Scouler for <Sihn>?).

The most unusual element of the list is the numeral system which it documents; aside from the omission of 7 and the inclusion of 11, it seems to document an archaic system which was built up largely on the descriptions of moves made in finger-counting (for instance 5, with unexpected <X>), but with some elements both of addition (for instance 8) and subtraction (for instance 9), while the word given as "ten" translates as "all" in modern Kumeyaay, Given that certain groups od Diegueño speakers tended not to use numerals above "five" (for instance, many speakers of Mesa Grande Diegueño), I venture a tentative speculation that the numerals, and maybe other parts of the list, were collected from more than one consultant, offering more than one dialect.

## JUANEÑO (SAN JUAN CAPISTRANO; AJACHMEM)

|  |  |  |  |
|---|---|---|---|
| 1 | Supuhe | /sepul/ | /supúl/ |
| 2 | Huah | /weh/ | /weh/ |
| 2 | Paahai | /pahai/ | /páahay/ |
| 4 | Huosah | /wehsá/ | /wosá'/ |
| 5 | Maharr | /mahár/ | /maháar/ |
| 6 | Pŏmkăiĭllŏh | - | /paváhi/* |
| 7 | Ehueohui | - | /kavíkviš/* |
| 8 | Shuăsăkăbiă | - | /šölaś/* |
| 9 | Huasa-yvicohull-maharr |  | - |
| 10 | Huikeen-maharr | - | - |

| | | | |
|---|---|---|---|
| Sun | Tēmet | /teme't/ | /timé-t/ |
| Moon | Mioīl | /mɔil/ | /móy-la/ |
| Star | Shul | /š-ūel/ | /ṣú'-la/ |
| Earth | Ēxel | /ɛxel/ | /'ex-la/ |
| Water | Pal | /paa'l/ | /páa-la/ |
| Sea | Moomt | /mɔmt/ | /móoma-t/ |
| River | Huani | /weníč/ | /wani-ś/ |
| Lake | Pal-mokat | - | /páa-la muká-t/ "water-big" |
| Salt | Ēngel | - | /'éŋ-la/ |
| Light | Kūt | /qu't/ | /kúu-t/ [fire] |
| Day | Nâânŭk | /teme-ŋa/ | /náanu-t/ "sunshine" |
| Night | Tueneñga | /tuukme't/ | /túu-ku-mi-t/ |
| Cold | Shōbōbŭt | - | /ṣuvó-ya-/ "be sensitive to cold" |
| Hot | Xalek | - | /saqi-/ |
| Stone | Tōōt | /tɔt/ | /tóo-ta/ |
| Mountain | Ka-hui | /qawii'č/ | /qawíiča/ |
| White | Huayaxnut | /waaixanţ/ | /xwaya-/ |
| Black | Yūbātexanut | /yeʋaatxanţ/ | /yuvá-ta-/ |
| House | Kēcha | /kič/ | /kíiča/ |
| Door | Pūpūk | - | /púu'uk/; /po-púu'uk/ "its door" |
| Bow | Kūtăpsh | /ne-qutup/ | /kútupi-š/ |
| Arrow | Ūl | /no-hú/ | /húula/ |
| Body | Pĕtāxo | - | /-táaxaw/; /po-taaxaw/ "his body" |
| Chief | Nōl | - | /nóo-ta/ |
| Man | Yei | /yeič/ | /ya'áš/ |
| Boy | Amaigomal | /amaiamel/ | /'amaya'-ma-l/ |
| Woman | Shūngāl | /šoŋwaal/ | /ṣuŋáa-l/ |
| Father | Neneh | /no-ná/ | /-ná'/ ; /no-ná'/ "my father" |
| Mother | Noyeh | /ne-yó/ | /-yo'/; /no-yo'/ "my mother" |
| Brave | Shehuŭshuit | - | ? /ṣuṣáavi-t/ "wise man, Mexican" |
| Great | Ahūūloot | /awólou/ | /yó-t/ |
| Small | Elūhmal | /wena'ma-l/ | /'alú'-ma-l/ |
| Head | Tchumyuh | /yuţ/ | /yúu-la/ |
| Heart | Noshuu | /nešuun/ | /ṣún-la/; /no-ṣún/ "my heart" |
| Hand | Poma | /na-maa/ | /ma-t/; /po-ma/ "his hand" |
| Ear | Panakwn | /na-naqam/ | /naq-la/; /po-naq/ "his ear" |
| Friend | Nĕ-hueh-lo | - | /nawíi-l/ "young woman" |
| Enemy | Nāāquañi | - | /káytu-ś/ |

The first set of explanatoryglosses are taken from A. L. Kroeber's recording of Juaneño , from José de Gracia Cruz (Kroeber 1909: 249-251), and have been retrasncribed in Americanist spelling, substituting <ś č ɛ ɔ h> for Kroeber's <c tc è ò '>. Kroeber overdifferentiated in writing /t/ and /ţ/, since only /t/ occurs in Juaneño-Luiseño, but his spelling has been retained. The second set of forms are to eke out the scanty Juaneño data: they are in the very closely related language Luiseño, and are taken mostly from Bright (1968), with additional data from Kroeber and Grace (1959); the morphology of some forms was pointed out to me by Dave Tappan.

Some of the words listed above have different meanings from those attributed to them by Coulter; the term for "friend" means "young woman", or presumably "girlfriend", the word for "brave" may be related to the modern word for "Mexican". The word translated "sea" is glossed as "ocean" by Kroeber; the word for "lake" is a construction parallel to Luiseño /páa-la muká-t/ "water-big" and exhibits a different word for "big" from the one listed later in the vocabulary, which is more characteristic of Juaneño. The words for "hot", "head" and "enemy", and also the higher numerals, contain unfamiliar roots which I have been unable to trace in Luiseño. The word for "heart" is presumably a misspelling of a form such as <Noshun> or <Neshun>, and the third letter in "night" should perhaps have been read by Scouler as <c> rather than <e>. There may also be misspellings in the words for "boy", "father", "mother" and "ear". The words given here for "man" and "mountain" are lacking the suffixed /-č/ attested in Kroeber's recording of Juaneño.

Luiseño had gambling numerals for 6-8, given above and asterisked, but these seem not to have been used in normal speech and Sparkman's consultant (erroneously) claimed that they were loanwords from Gabrielino. The Luiseño and Juaneño word for "five" is a loanword from Gabrielino /mahár/, /-r/ being the absolutive affix characteristic of Gabrielino (Kroeber and Grace 1960: 118). The numeral for 7 seems to contain the element for 2.

The words for "father", "mother", "heart", and presumably also "friend" and "enemy" incorporate first-person singular possessive prefixes, while the words glossed "body", "hand", "ear", and maybe "door", incorporate a third-person possessive prefix.

**GABRIELINO (SAN GABRIEL; TONGVA)**

| English | Coulter | Kroeber | Hale | Harrington |
|---|---|---|---|---|
| 1 | Puku | pukú´ | pukū | /pokú'/ |
| 2 | Huehe | wehé´ | wehe | /wehé'/ |
| 3 | Pai | pahi | pahé | /páhe'/ |
| 4 | Huatsa | watsá | watsă | /wacá'/ |
| 5 | Maharr | mahár | | /mahár/ |
| 6 | Patahi | pabahi ? | | /páhe kávya'/ |
| 7 | Huatsakaben | pukupaiυi | | /wacá' kávya'/ |
| 8 | Huehesh-huatza | wehebaiυa | | /wehés wacá'/ |
| 9 | Maher-kaben | baie | | /mahár kávya'/ |
| 10 | Hushesh-mahev | weheśmahar | | /wehés mahár/ |
| Sun | Taamet | tamit | tāmet | /támet/ |
| Moon | Mūărr | moar | mōār | /mwar/ |
| Star | Shosho-huoot | šušyot | suōt | /sosyót/ "stars" |
| Earth | Ūngxūr | ŏxar | touáŋa | /'óxor/ |
| Water | Pāārā | par | bar, akwāken | /par/ |

| | | | | |
|---|---|---|---|---|
| Sea | Mōhōnōt | momać | | /mómot/. |
| River | Paxaít | paxait | | /paxáyt/ |
| Salt | Ŭńgurr | angor | | /'oŋór/ |
| Day | Ŏrŏáxé | | oróŋa | /'oró'axe/ |
| Night | Yáûke | yauke | yauket | /yáw'ke/ |
| Cold | Ōtsō | | otso | /'ocó'/ |
| Hot | Ōrō | | oro | /'oró'/ |
| Stone | Tōtā | | totā | /totá/ |
| Mountain | Xāüx | xai | haix | /xay/ |
| Black | Yupixa | yumaxai | yapixa/yumăxpe | /yopíxa'/ |
| House | Kiit | kig | kītç, kin | /kiy/ |
| Door | Ahū-nŭn | | | [?] |
| Bow | Paitxoarr | baitoar | paitxuar/paitōx | /páytxo'ar/ |
| Arrow | Toūarr | čoar | tçūar, nihūn | /hur/ |
| Body | Atatax | | | [?] |
| Chief | Tomēarr | tomiar(?) | tomer, tomiár | /tomyár/ |
| Man | Ngorôite | υoroit | woroit | /woróyte/ |
| Boy | Kobatso | kwiti | kwiti | /kováce'/ "youth" |
| Woman | Tokor | tokor | tokōr | /tokór/ |
| Father | Amak | | anak | /'anák/ |
| Mother | Aŭkŏ | | aŏk | /'awk/ |
| Brave | Ītako | | | [?] |
| Strong | Huuka | | apūsteret | /ho'óka'/ |
| Bad | Chaĭtĕ | čaite | mohurăi, mōhai | /cáyte/ "it's ill" |
| Great | Yo-oite | yoòitc | yoit/wariajeren | /yo'óyte/ |
| Small | Tsinuch | činŭhu | tçinui | /cenúy, cenúho'/ |
| Much | Aye-oin | | ayòin, aiòen | /'ayó'en/ |
| Head | Ăpuan | ni-pwan | apoān | /'apwán/ |
| Heart | Ashūn | | ahuŋ, sūn | /'asún/ |
| Hand | Aman | ni-man | amän | /'amán/ |
| Ear | Ananax | ni-nanax | anāna, näjas | /'anánax/ |
| Friend | Niye-hiya | | | [?] |
| Enemy | Nikait | | | [?] |

The J. P. Harrington forms and accompanying glosses were kindly provided by Kenneth C. Hill. I add the words noted in Kroeber (1907, 1909; respelt) and Hale (1846). I have not taken forms from Galloway (1978); she transcribes Gabrielino words in a reliable orthography, but since the language is extinct and poorly-attested, she took her lexical material from various sources without specifying which words came from which source. Since her book includes some words, such as "body", which Coulter obtained but Hale, Kroeber and Harrington did not, I suspect that her listing of the form is simply a retranscription of the word noted by Scouler alone.

David S. Tappan informs me that the form /páhe kávya'/ for the number "six" (also /paváhe'/) is anomalous, and should really mean "five", since the sense of /kavyá'/ is (2n - 1), as with 7 and 9. The forms for "day", "man" and "bad" literally mean "it's hot", "it's a man", and "it's someone ill".

## SANTA BARBARA (BARBAREÑO CHUMASH)

| | | |
|---|---|---|
| 1 | Paka | /pák'a/ |
| 2 | Shkoho | /'iśkóm'/ |
| 3 | Masex | /másix/ |
| 4 | Skumu | /skúm'u/ |
| 5 | Yiti-paka | /yitipak'a/ |
| 6 | Yiti-shkome | /yitiškóm'/ |
| 7 | Yiti-masex | /yitimásix/ |
| 8 | Malahua | /maláwa/ |
| 9 | Spa | /spa'/ |
| 10 | Keshko | /k'el-eśkóm'/ |
| 11 | Keilu | /t'ílu; ónsi/ |
| 12 | Masex-eskumu | /masixeskúmu/ |
| 13 | Kel-paka | /tilési/ |
| 14 | Kel-ishko | /katólsi/ |
| 15 | Kel-masex | /kínsi/ |
| 16 | Peta | /(s)pét'a/ |
| Sun | Alishaxua | /'alíśaw/ |
| Moon | Aguai | /'á'way/ |
| Star | Akehuu | /'aqíwo/ |
| Earth | Iti-kiala-kaipi | /śup/ |
| Water | Oh | /'o'/ |
| Sky | Alapai | /'alápay/ |
| Sea | S'xamihui | /sxá'min/ |
| River | Shtejeje | /('u)štéxex/ |
| Lake | Eukeke | /'ïk'/ |
| Salt | Tipi | /tip/ |
| Light | Neuk | /uquštáy/; cf. /nï/ "fire" |
| Day | Husiec-esini | /'alíśaw/; cf. Obispeño /qši/ "day". |
| Night | Sulcuhu | /súlkuw/ |
| Cold | Soxton | /axt'átax/ (? it is cold) |
| Hot | Sientseuk | /yínc'i/ (? it is hot) |
| Stone | Xeüp | /xïp/ |
| Mountain | Oshlolomohl | /nipolómol/ |
| White | Ohuox | /'ó'wow/ |
| Black | Axemai | /'axímay/ |
| House | Ahpa | /'ap/ |
| Door | Ekeipe | /mitíp'in/ |
| Bow | Axa | /'ax/ |
| Arrow | Yah | /ya'/ |
| Body | Hekiampuin | /'á'min/ (? it's your body) |
| Chief | Huot | /wót'/ |
| Man | Eheye | /'ïhï'y/ |
| Boy | Tupneesh [sic] | /'ïhïy' 'i tupmékč/ "male child" |
| Woman | Ehnek | /'éneq/ |
| Father | Kokonosh | /kók'o/ |

|  |  |  |
|---|---|---|
| Mother | Xoninash | /xonináś/ |
| Brave | Axauishash | /śáxsiś/ |

Forms in the third column are Barbareño equivalents of these glosses from the idiolect of Mary Yee, taken from Whistler (1980).

I have been unable to find parallel forms in Whistler's work for the word translated here as "earth". The forms which Coulter gives for "day", "mountain", "body", "door" and "brave" also contain some unanalysable material (unless Scouler has severely mistranscribed the forms for "mountain" and "door"). The portion <-c-esi-> of Coulter's word for "day" may be cognate with the Obispeño form. The forms for "cold" and "hot" seem to contain third-person prefixes, and in addition the stem for "cold" is simple, whereas in later Barbareño it was used in a reduplicated form. The term given for "light" means "fire", as is also the case in the Juaneño, Obispeño, Antoniaño and Pima lists.

Whistler does not list a form */kok'onóś/ for "father", parallel with the form for "mother", but it is possible that it once existed. The form for "child", glossed here as "boy" was originally */tupnékč/, and assumed its later form through assimilation to the point of articulation; Alphonse Pinart recorded <tapnekč> for "boy, girl" in 1878 and Henry W. Henshaw noted <tup-nĕks> for "young man" in 1884 (Heizer 1952a: 37, 1952b: 94).

Coulter's numerals for thirteen, fourteen and fifteen were to be replaced by Spanish loanwords, though the old words for twelve and sixteen remained in use; the form for eleven was usually replaced by a Spanish loanword, because of its resemblance to /t'il'i/ "vagina".

## SAN LUIS OBISPO (OBISPEÑO CHUMASH)

|  |  |  |
|---|---|---|
| 1 | Tshxumu | [śumu - śumo - sumu - sumo] |
| 2 | Eshiū | ['estʸu'] |
| 3 | Misha | [mísi'] |
| 4 | Paksi | [páksi] |
| 5 | Tiyehui | [tiyeni - tiy'eni] |
| 6 | Ksuhuasya | [ksuwastʸu] |
| 7 | Kshuamishe | [ksuwasmisi] |
| 8 | Sh'komo | [skomo - skom'o] |
| 9 | Shumotchi-maxe | [? skumučímaxi APG; no form in JPH] |
| 10 | Tuyimili | [tut´imłi] |
| 11 | Tihuapa | [tiwapa] |
| 12 | Takotia | [takotia - takutia] |
| 13 | Huakshumu | [wak(ł)sumu] |
| 14 | Huaklesiu | [wak(ł)stʸu] |
| 15 | Huaklmishe | [wak(ł)misi'] |
| 16 | Peusi | [pïsi] |

| | | |
|---|---|---|
| Sun | S'maps | /tamapsï/ |
| Moon | Tabua | /tawa'/ |
| Star | K'shishimu | /č-ašimu'/ |
| Water | To | /t-o'/ |
| Sky | Tixis | /titʰisa/ |
| Sea | T'shnexan | /č-nixeno/ "lake" |
| River | Tslimi | /čʰlimi'/ |
| Salt | Tepu | /tepú'/ |
| Light | Tini | /tinï/ "fire" |
| Day | T'chashin | /ćaśina/ |
| Night | Tch'xime | /ł-tʸimi/ |
| Stone | Txeup | /xïpï/ |
| Mountain | Tspu | /cʰpʰu/ "earth" |
| Bow | Taxa | /'axa/ |
| Arrow | Tslehui | /cʰ-lewe/ |
| Man | H'lmono | /łmon'o/ |
| Boy | Tschuilmono | /cʰiwiłmono'/ |
| Woman | Tasiyuhl | /tasitʸuhu/ |
| Father | Sapi | /-sapi/ |
| Mother | Tuyu | /tʸu'yu/ |
| Bad | Tsohuis | /yakʰc'u'isi/ |
| Good | Ts'yunon | /-tʸu/ |
| Much | Tsexu | /-'ex̨u/ |
| Little | Tsihuisnin | /-cʰiwisnin/ |
| Head | P'sho | /šo'/ |
| Heart | Noxop | /noxopʰ/ |
| Hand | Nupu | /-pu/ |
| Ear | P'ta | /ta'/ |
| Friend | Tsaxsi | /saxsi'/ |
| Enemy | Tsinayihlmu | [see parallel form in Antoniaño Salinan] |

In this list, the forms in the third column are taken from Kathryn A. Klar, (ms.) Numerals 1-8, 10 in square brackets are phonetic, not phonemic, forms from J. P. Harrington's notes from Rosario Cooper (who was dead by 1916), see Klar (1980). I have replaced Harrington's <q> by its American phonemic counterpart, /x/. The reconstruction of 9, 11-16 is by Anthony Grant (hypothesised /ł/ is especially tentative).

Many of these forms exhibit the dental prefix which marks Obispeño off from other Chumashan langiuages, and which may have been diffused from Salinan. The word for "enemy" is not listed in Klar (ms.), but appears to be a loan from Salinan (or possibly a loan into Salinan); at any rate it occurs in Antoniaño Salinan (I have not been able to find it in Migueleño in the sources available to me).

## SAN ANTONIO (ANTONIAÑO SALINAN)

| | | |
|---|---|---|
| 1 | Kitol | /t'ól/ |
| 2 | Kakishe | /kakiše - kakišo - kákšo/ |
| 3 | Klap'hai | /klá-pay/ |
| 4 | Kisha | /kí-ša'/ |
| 5 | Ultraoh | /'ól-ţaw'/ |
| 6 | Paianel | /pay-áanel/ |
| 7 | T'eh | /(ki)-té'/ |
| 8 | Shaanel | /ša-'áanel/ |
| 9 | Tetatsoi | /tete-ţo'e/ |
| 10 | Tsoeh | /ţó'e/ |
| 11 | Tsosoktolh | /ţo'e-tax-t'ól/ |
| 12 | Lapaiksha | /lá-pay-kša - ţó'e-tax-kákšo/ |
| 13 | Lapaiksha trextol | /lá-pay-kša taxt'ól - ţó'e-tax-k-lá-pay/ |
| 14 | Huoshosho | /wošóšo - ţó'e-tax-kí-ša/ |
| 15 | Lapai-ultraū | /la-páy-'ól-ţaw - ţó'e-tax-'ól-ţaw/ |
| 16 | K'pesh | /kpeš - ţo'e-tax-pay-áanel/ |
| 20 | Kakisho-tsoeh | /kakišo-ţó'e/ |
| Sun | Nnah | /ná'/ |
| Moon | Tatsoopai | /tac'óope'/ |
| Star | Tatch-huanillh' | /ţ̂ančwáanel/ |
| Earth | Lac | /lák'/ |
| Water | Tcha | /čá'/ |
| Sky | Napalemak | */léma'/ [/napa-lemak/ "that's the sky"] |
| Sea | Sh-kem | /škém/ "ocean" |
| River | Shooka | /šóok'a'/ |
| Lake | Īlpoi | /lpóy' - lpóy/ |
| Salt | Trakai | /ţaakáy'/ |
| Light | Traan | /ţa'áw'/ "fire" |
| Day | Trokana | /ţóokena'/ |
| Night | Smekkai | /smákay/ |
| Cold | Tsatleia | /c'átel/ |
| Hot | Trauyeiya | ? /ţayeya/ "dust" |
| Stone | Tashxa | /čxá'/ |
| Mountain | Kitspoi | */keţ'póoy/ |
| White | K'matsol | /maţa(a)/ |
| Black | K'hanhuat | /šówet/ |
| House | Traamah | /ţéema'/ |
| Door | Tahxam | /laxám/ |
| Bow | Xakeia | /xakéy'/ |
| Arrow | Tatoiyen | /ţet'óy'in/ |
| Body | Natrikan | /ţ-é-kaw'/ "my body" |
| Chief | Quatai | - |
| Man | Lūāh | /lowá'/ |
| Boy | Sketana | /štexá'/ (Coulter's word is "small") |
| Woman | Letse | /lec'é'/ |
| Father | Tele | /téele'/ |

| | | |
|---|---|---|
| Mother | Epjo | /'éepax/ |
| Brave | Xaialhua | */kéexá'ya'/ |
| Strong | Kmopax | Mason <(k)imoupxa> "valiant" |
| Bad | Xomo | /xomó'/ |
| Good | Kĭtsep | /c'ep/ |
| Great | Katcha | /kečáa'/ |
| Small | Skitano | */skítena'/ |
| Much | Xaiya | /xáya'/ |
| Little | Shomo [sic] | Mason <skomo'> "slightly" |
| Head | Traako | /ţák'/ |
| Heart | Aahuu | Mason <e:xiwai'> |
| Hand | Menan | /me'én/ |
| Ear | Tishokolo | /ţešk'ól'/ |
| Friend | Tienxa | Mason <tienkha> |
| Enemy | Trinaihl | /ţénai'l/ |

Salinan forms in slashes are reconstituted forms, and are taken from Turner (1980), except for the numerals, which are from Turner (1988), with her raised dot for vowel lengthening replaced by double vowels. Forms put between angular brackets and marked Mason are taken from Mason (1918). Forms marked * are extremely tentative attempts towards a reconstitution by Anthony Grant, and are based on material from J. Alden Mason, J. P. Harrington or William H. Jacobsen Jr., quoted in Turner (1980) but not furnished with a reconstituted form. /'/ represents glottal stop; glottalised consonants are represented as /C'/.

The Salinans did not have chiefs as part of their social organisation (Alphonse Pinart in Heizer 1952a: 73 recorded a form for "chief" which can be analysed as /k-e-p-kapitan-k-eča/, embodying the Spanish word **capitán**, which was often used in colonial Spanish to refer to a native chief chief"; Katherine Turner, personal communication). It is just possible that the Salinan form quoted might be a bookkeeping or copying error on the part of Coulter or Scouler, from the Diegueño word for "big". The shapes of the words for "sun", "light", "door", "little", "hand", maybe also "cold" and "heart" suggest misreadings of Coulter's writing on Scouler's part. The words for "hot", "black" and "brave" do not correspond to words of those glosses in the Salinan materials available to me, and I have some misgivings about Mason's forms for "heart" and "friend" as well. The form given for "good" is not listed with the stative /k-/ prefix by Mason, though it bears it here.

ADDENDUM

Professor Bruce Rigsby informed me in a letter of October 1992 that Tolmie's "Shahaptian" vocabulary was indeed Nez Perce and not a northern Sahaptin dialect, as his later list was supposed to have been; this is indicated by the presence in the list of typically Nez Perce forms such as /ku:s/ "water" (compare Umatilla Sahaptin /ču:š/).

|  |  |  |
|---|---|---|
| Mother | Epjo | /'éepax/ |
| Brave | Xaialhua | */kéexá'ya'/ |
| Strong | Kmopax | Mason <(k)imoupxa> "valiant" |
| Bad | Xomo | /xomó'/ |
| Good | Kítsep | /c'ep/ |
| Great | Katcha | /kečáa'/ |
| Small | Skitano | */skítena'/ |
| Much | Xaiya | /xáya'/ |
| Little | Shomo [sic] | Mason <skomo'> "slightly" |
| Head | Traako | /ţák'/ |
| Heart | Aahuu | Mason <e:xiwai'> |
| Hand | Menan | /me'én/ |
| Ear | Tishokolo | /ţešk'ól'/ |
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| 7 | T'eh | /(ki)-té'/ |
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| Sun | Nnah | /ná'/ |
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| Star | Tatch-huanillh' | /ţančwáanel/ |
| Earth | Lac | /lák'/ |
| Water | Tcha | /čá'/ |
| Sky | Napalemak | */léma'/ [/napa-lemak/ "that's the sky"] |
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| White | K'matsol | /maţa(a)/ |
| Black | K'hanhuat | /šówet/ |
| House | Traamah | /ţéema'/ |
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| Bow | Xakeia | /xakéy'/ |
| Arrow | Tatoiyen | /ţet'óy'in/ |
| Body | Natrikan | /ţ-é-kaw'/ "my body" |
| Chief | Quatai | - |
| Man | Lūáh | /lowá'/ |
| Boy | Sketana | /štexá'/ (Coulter's word is "small") |
| Woman | Letse | /lec'é'/ |
| Father | Tele | /téele'/ |

# REFERENCES

Aoki, Haruo. 1970. **Nez Perce Grammar.** *University of California Publications in Linguistics 62.* University of California Press: Berkeley and Los Angeles.

Beeler, Madison S. 1986. "Chumash Numerals." In: Michael P. Closs (ed.), **Native American Mathematics,** 109-128. Austin: University of Texas Press.

Boas, Franz. 1933. "Notes on the Chinook Jargon." *Language* 10: 208-213.

Bright, William. 1968. **A Luiseño Dictionary.** *University of California Publications in Linguistics 51.* University of California Press: Berkeley and Los Angeles.

Coulter, Thomas. 1835. "Notes on Upper California." *Journal of the Royal Geographical Society* 5: 59-70.

Dixon, Roland Burrage, and Alfred Louis Kroeber. 1907. "Numeral Systems of California." *American Anthropologist* (new series) 9: 663-690.

Gallatin, Albert. 1848. "Hale's Indians of Northwest America, and Vocabularies of Northwest America." *Transactions of the American Ethnological Society* 2: xxiii-clxxxviii, 1-130.

Galloway, Anne. 1978. **Továngar (World): A Gabrielino Word Book.** Banning CA: Malki Museum Press.

Grant, Rena V. 1945. "Chinook Jargon." *International Journal of American Linguistics* 11: 225-233.

Hale, Horatio Emmons. 1846. **Ethnography and Philology**. Boston: Lea and Blanchard.

Heizer, Robert L. 1952a. **"California Indian Linguistic Records: The Mission Indian Vocabularies of Alphonse Pinart."** *University of California Anthropological Records* 15: 1 : 1-84.

1952b. "California Indian Linguistic Records: The MIssion Indian Vocabularies of H. W. Henshaw." *University of California Anthropological Records* 15: 2: 85-202.

Klar, Kathryn A. 1980. "Northern Chumash Numerals." In: Kathryn A. Klar, Margaret Langdon and Shirley K. Silver (eds.), **American Indian and Indoeuropean Studies: Papers in Honor of Madison S. Beeler**, 113-119. The Hague and Paris: Mouton.

ms. **Obispeño Chumash Dictionary**. Unpublished manuscript.

Kroeber, Alfred Louis. 1907. "Shoshonean Dialects of California." *UCPAAE* 4: 65-165.

1909. "Notes on Shoshonean Dialects of Southern California." *UCPAAE* 8: 235-269.

and George William Grace. 1959. **The Sparkman Grammar of Luiseño.** *University of California Publications in Linguistics 16.* University of California Press: Berkeley and Los Angeles.

Lamb, W. Kaye. 1985. "Tolmie, William Fraser." **The Canadian Encyclopaedia**, volume 3, 1828. Edmonton: Hurtig.

Latham, Robert Gordon. 1854. "On the Languages of New California." *Proceedings of the Philological Society* (London) 6: 42-58.

Mason, J. Alden. 1918. "The Language of the Salinan Indians." *UCPAAE* 14 (1): 1-154.

Nelson, E. Charles. 1988. "Trinity's Miner-Botanist: Dr Thomas Coulter (1793-1843)". *Hermathena, a Trinity College Dublin Review.* No. CLXV. 7-21.

Poser, William J. 1992. "The Salinan and Yurumanguí Data in *Language in the Americas.*" *Internatonal Journal of American Linguistics* 58: 202-229.

Saxton, Dean, Lucille Saxton, and Susie [Suzanne Ignacio] Enos. 1983. **Dictionary, Papago-Pima/English, O'othham-Mil-gahn - English/Papago-Pima, Mil-gahn-O'othham.** Revised and expanded by R. L. Cherry. Tucson: Uiversity of Arizona Press.

Scouler, John. 1841. "Observations on the indigenous tribes of the northwest coast of America." *Journal of the Royal Geographical Society of London* 11: 215-251.

Tolmie, William F., and Dawson, George M. 1884. **Comparative Vocabularies of the Indian Tribes of British Columbia.** Montreal: Dawson Brothers.

Turner, Katherine. 1980. "The Reconstituted Phonemes of Salinan." *Journal of California and Great Basin Anthropology Papers in Linguistics* 2: 53-91.

1988. "Salinan numerals." In: William F. Shipley (ed.), **In Honor of Mary Haas**, 795-804. Berlin: Mouton de Gruyter.

Whistler, Kenneth W. 1980. **An Interim Barbareño Chumash Dictionary.** Unpublished manuscript.

Woodward, Bernard Barham. 1897. "Scouler, John". **Dictionary of National Biography**, edited by Sir Leslie Stephen and Sir Sidney Lee, volume XVII, 1060-1061. London: Spottiswode and Co.

# Descent of Lake Miwok

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This paper represents a progress report on *Lake Miwok Grammar*, the revision of my Ph.D. dissertation (1963), to include a historical dimension in addition to the synchronic analysis. The Introduction and the first two chapters of the submission draft (Synchronic Phonology and Historical Phonology) are now complete.

In "Historical Phonology," I state evidence that Lake Miwok territory might have once been more extensive, based on Patwin place names that have a possible Miwok etymology, such as Li-wai-to 'people on Putah Creek at foothills,' where -to is the common Miwok allative case marker, which in Northern Sierra Miwok designates people from a certain area, e.g. cym·e-to- 'a Tuolumne Indian'. I also provide an updated list of probable and possible Lake Miwok loan words from neighboring Indian languages (particularly Patwin), followed by a discussion of sound developments from Proto Miwok into Western Miwok and Lake Miwok. Since I have discussed Lake Miwok sound developments and loan words into that language elsewhere (1964, 1972, 1987, 1988), I will omit further discussion here.

Instead, I will concentrate on the development of Lake Miwok stem types. When I wrote the original version of *Lake Miwok Grammar*, I did not have a body of Proto Miwok at my disposal, so I was forced to write a strictly synchronic grammar, with many seemingly arbitrary verb classes. Thirty years later, I realized that the whole system made much better sense when viewed historically in terms of an ablaut system (Callaghan 1986), which had undergone much neutralization and reformation in Western Miwok.

There were five basic verbal stem types in Proto Miwok, and probably Proto Utian; Light Stem, Cluster Stem, Geminate Stem, Long Stem, and a rarer type, the Weak Stem. The Simplex Stem was the first CVC- of a longer stem (not always recoverable), and it could take a stem formative suffix of the form -CV to form a new Cluster Stem. An example is PMi *puṭ-ku 'to gut', where the Simplex Stem *puṭ- < **puṭ·ul (?) 'belly', and *-ku is a transitive stem formative suffix. A Lengthened Simplex Grade of the form $C_1V_1{\cdot}C_2Y$- could also be formed from longer stems, such as PMi *wy·ky 'to burn', presumably from PMi *wyke 'fire'.

Fortunately, the five principal underlying stem types survived in Eastern Miwok as the base for the present indicative, allowing us to recover the original system. At this point, it is profitable to examine L. S. Freeland's Central Sierra Miwok stem alternations. The following chart was compiled from Freeland (1951:94-95) with some modifications. For convenience of comparison, I have added my own classification by stems and grades.

## Freeland's Stem Alternations

| **Stem 1** | **Stem 2** | **Stem 3** | **Stem 4** |
|---|---|---|---|
| $C_1 V_1 C_2 V_2 \cdot C_3$ -Y-<br>< *$C_1 V_1 C_2 V_2 C_3$ -<br>(Light Stem) | $C_1 V_1 C_2 V_2 C_3$ -<br>(Light Grade) | $C_1 V_1 C_2 \cdot V_2 C_3$ -<br>(Geminate Grade) | $C_1 V_1 C_2 C_3 V_2$ -<br>(Cluster Grade) |
| ṭuja·ŋ-y- 'to jump' | ṭujaŋ- | ṭuj·aŋ- | ṭujŋa- |
| $C_1 V_1 C_2 C_3 V_2$ -<br>(Cluster Stem) | | | |
| wyk-ty- 'to burn' | wykyt- | wyk·yt- | wykty- |
| $C_1 V_1 C_2 \cdot V_2$ -<br>(Geminate Stem) | | | |
| ham·e- 'to bury' | hameʔ- | ham·eʔ- | hamʔe- |
| $C_1 V_1 \cdot C_2$ Y-<br>(Lengthened Simplex Grade) | $C_1 V_1 C_2$ -<br>(Simplex Grade) | | |
| ha·ṭy- 'to step on' | haṭ- | haṭ·yʔ- | haṭʔy- |

Freeland did not include two additional stem types in her chart; Long Stems of the canon $C_1 V_1 \cdot C_2 V_2$ -, where $V_2$ is not //Y//, and Weak Stems of the canon $C_1 V_1 C_2 V_2$ -. Examples are PMi *ʔo·ni 'to come' and PMi *(h)yṭe 'to see' respectively. But the important thing is that the canon of Stem 1 (the primary stem) is variable, while the shape of the other stems can be predicted if the primary stem is known. Also, the system of derived stems assumes an underlying triconsonantal stem, with /ʔ/ serving as a filler consonant if Stem 1 is biconsonantal. This filler consonant appears to be an Eastern Miwok innovation, since there is no trace of it in Western Miwok or Costanoan, although there is a non-productive Chocheño glottal stop infix which forms transitive verbs, e.g. taw·a 'to be hot' and tawʔa 'to heat something, to burn oneself'.

Plains Miwok stem alternations closely resembled the Sierra Miwok pattern. In Western Miwok, Light Stem and Cluster Stem verbs merged to Light Grade verbs word finally and before most suffixes. These stem types underwent an opposite merger in Costanoan to a Cluster Grade, except before certain suffixes such as the reflexive. For convenience, Lake Miwok verbal stems will be classified historically in terms of the Proto Miwok stem type where this is known, rather than synchronically. For example, Mil hójut ~ hójot 'to start' is a historic Cluster Stem (< PMi *hoj-tu 'to start'), despite the fact that the Light Grade occurs in most environments. Mil kícaw 'to bleed' is a historic Light Stem verb (< PMi *kičaw 'to bleed').

The most striking aspect of both Eastern and Western Miwok stem systems is the presence of metathesis as an active morphological process in disyllabic triconsonantal stems. It is the ablaut process which derives the Cluster Grade from Light

Stem verbs, or vice versa, whichever is underlying. Its vitality in indicated by the fact that it involves loan words. Consider Mil ?ísal 'to fry' (< Spanish asar 'to roast'?) and ?ísla-ṭi 'to warm up'.

The following sets of Lake Miwok verbal stems illustrate how the historical dimension can aid in classifying borrowed stems and those stems whose etymologies are unknown.

Principal Types of Proto Miwok Verbal Stems

| | | |
|---|---|---|
| A. | Light Stem ($C_1V_1C_2V_2C_3$) | PMi *nenut 'to know, recognize' |
| B. | Cluster Stem ($C_1V_1C_2C_3V_2$) | PMi *wel-ki 'to get' (*-ki'transitive'?) |
| C. | Geminate Stem ($C_1V_1C_2\cdot V_2C_3$) | PMi *myl·a 'to hit, to beat' |
| D. | Long Stem ($C_1V_1\cdot C_2V_2$) | PMi *?o·ni 'to come' |
| E. | Weak Stem ($C_1V_1C_2V_2$) (rare) | PMi *(h)yṭe 'to see' |
| F. | Simplex Stem ($C_1V_1C_2$-) | PMi *puṭ- in *puṭ-ku-'to gut' < **puṭ·ul 'belly'? |

**Lake Miwok Light Stems**

| **Light Stem** | **English** | **Cluster Grade** | **Geminate Grade** | **Lengthened Grade** |
|---|---|---|---|---|
| Mil kícaw < PMi *kičaw | to bleed | | kíc·aw 'blood' < PMi *kič·aw | |
| Mil pʰíč́ak < PMi *pičak | to crush | pʰí·č́ka-ṭi 'to crush something' | | pʰí·č́ak 'to crush slowly' |
| PMi *nenut | to know, recognize | nentu-po 'to realize' | | né·nut 'to know, care' |
| PMi *wyṭak | scrape, scratch | wócka-ṭi 'to scratch once' | | wó·cak 'to scratch' |
| Mil ṣíṭak | to drill | | | ṣí·ṭak 'to drill things' |
| Mil ?ísal < Sp. asar ? 'to roast' | to fry | ?ísla-ṭi 'to warm up' | | ?í·sal 'to keep frying' |

Not all grades are attested for every Miwok verb any more than for every Indoeuropean verb. For example, there is no Mil *kicwa- (Cluster Grade) or *kí·caw (Lengthened Grade) of kícaw 'to bleed' in the analyzed data.

The Cluster Grade occurs automatically before the semelfactive/perfective suffix -ṭi, and usually before the reflexive suffix -po. A Light Grade before -po would have an iterative force, such as Mil ʔocóh-pa 'to spray several things' (dog). (Neither aspiration nor length in Mil pʰí·ćka-ṭi is fully explained.) The Lengthened Grade is associated with durative states or actions.

Consequently, it makes sense to classify Mil né·nut 'to know' as the Lengthened Grade of PMi *nenut, even though the expected Lake Miwok Light Grade, *nenut, is not attested.

Likewise, there is no attested Lake Miwok Light Grade reflex of PMi *wyṭak 'to scrape, scratch', although one would expect *wócak from phonological developments, and the Lengthened Grade, Mil wó·cak 'to scratch, pick at the face' is attested.

Mil ṣíṭak 'to drill' cannot be traced to Proto Miwok. We will consider it a Light Stem. The Cluster Grade is not attested, and there is no semi-accidental meaning such as occurs in some historic Cluster Stems ending in -ka, such as Mil cół-ka-ṭi 'to have diarrhea' < PMi *čul-ka 'to have diarrhea'.

If Mil ʔísal 'to fry' is indeed from Spanish asar 'to roast', it is a Light Stem loan word that has been fully incorporated into the ablaut system.

**Lake Miwok Cluster Stems**

| **Cluster Stem** | **Light Grade** | **Geminate Grade** | **Lengthened Grade** |
|---|---|---|---|
| PMi *hoj-tu<br>'to start' | hójut~ hójot | | hó·jut ~ hó·jot<br>'start, one by one' |
| PMi *mul-tu<br>'eat breakfast' | múlut | | mú·lut 'to breakfast, one by one' |
| PMi *kyn-ṣy<br>'fart, defecate' | kúnuh | | kú·nuh 'to defecate repeatedly' |
| Mil ʔoc-ṣu-pa<br>'to spray (dog)<br>< PMi *ʔoṭ-ṣu<br>'to urinate' | ʔócoh 'to urinate' | ʔóc·o-n-jomi<br>'bladder' | ʔó·coh 'to urinate repeatedly' |
| Mil cúd-ku-ṭi<br>'to tear off'<br>< Wph čura· KW | ćúd-uk 'take pieces off' | ćúd·a-pa-ṭi<br>'ripped up' | |

The Cluster Stems in the chart above were bimorphemic in Proto Miwok. PMi *-tu was a stem formative suffix, often in intransitive verbs, and PMi *-ṣY occurred in intransitive verbs designating bodily activities. The realization that the Lake Miwok verbs connected with 'urine/urinate/to spray' were in fact reflexes of different ablaut grades of PMi *?oṭ-ṣu 'to urinate' made sense of a seemingly bizarre and irregular set. Mil ?ócoh 'to urinate' is a reflex of PMi *?oṭuṣ, the Light Grade of PMi *?oṭ-ṣu, with vocalic assimilation and the regular sound developments PMi *ṭ > Mil c/ó_ and PMi *ṣ > Mil h in final possition. The Geminate Grade is often associated with nouns, and Mil ?óc·o-n-jomi 'bladder: urine-possessive-place' is from PMi *?oṭ·uṣ, with vocalic assimilation and loss of final /h/ before the possessive case marker.

The set involving words for 'tear off' illustrates how a stem borrowed from Patwin was incorporated into the ablaut system. Wph čura· 'to tear' was probably borrowed as an unattested Lake Miwok stem *ćúda-, whose Geminate Grade occurs in ćúd·a-pa-ṭi 'ripped up', since a Geminate Grade or Cluster Stem regurlarly occurs before the intensive adjective suffix -pa-ṭi. Mil ćúd-, a Simplex Grade, was formed from the first CVC- of the longer stem, to which the stem formative suffix -ku 'deliberate action' was added to form Mil ćúd-ku-ṭi 'to tear off a piece: tear-deliberate-semelfactive'. A Light Grade of this new Cluster Stem appears in Mil ćúd-uk 'to take little pieces off'.

### Lake Miwok Geminate Stems

| **Geminate Stem** | **English** | **Reduced Grade** | **Lengthened Grade** |
|---|---|---|---|
| Mil túm·u<br>< PMi *tum·u | to haul wood | tumú·-ṭi 'to go for wood' | |
| Mil lój·a<br>< PMi *loj·a | to rub fast<br>to rub | lojá·-ṭi 'to rub once' | |
| Mil mul·a<br>< PMi *myl·a | to beat<br>to hit, beat | múla 'to hit once' | |
| Mil ṣik·a | put several things in | ṣika 'to fill (one thing)' | ṣí·ka 'to fill things up, one at a time' |

Geminate Stem verbs lack a third consonant, and no filler consonant can be reconstructed for Proto Miwok. In Lake Miwok, Geminate Stems assume an iterative force, and the Reduced Grade of Geminate Stems denote single action, either unmodified or with the semelfactive/perfective suffix -ṭi. In the first set, Mil tumú·-ṭi, -ṭi may be an andative rather than a semelfactive suffix.

The etymology of Mil ṣik·a 'to put several things in' is uncertain, but it follows the pattern of historic Geminate Stem verbs and will be so classified. This verb also has a Lengthened Grade, Mil ṣí·ka 'to fill things up, one at a time', which has a more durative connotation.

**Lake Miwok Long Stems**

| **Long Stem** | **English** | **Reduced Grade** | **Simplex Grade** |
|---|---|---|---|
| Mil ?ó·ni < PMi *?o·ni | to come | ?oní-n·uka 'to bring' < PMi *?oni-n·uku ~ *?oni·-nuku | ?ón-ṭe-ṭa 'to parade' |
| Mil ?ó·ni-ṭa | to come in a group | | |
| Mil ?é·c < PMi *?e·čy | to sleep | | ?éc-ko-pa-ṭi 'oversleeping' |
| Mil ?ú·ku-ṭa < PMi *?u·ku 'to enter' | to go in, one by one | | ?úk-an 'to enter' |
| Mil ?é·la | to play | ?elá-k-te 'to play, have fun' | |

Historical classification of Lake Miwok Long Stems also sheds light on synchronic analysis. The allomorphs associated with Mil ?ó·ni 'to come' seem at first simply irregular until one realizes that a stem of the form $C_1V_1C_2V_2$- (a Reduced Grade) regularly occurs in Eastern Miwok causatives, exactly the pattern exemplified here, allowing us to reconstruct the Proto Miwok pattern along with an example. The /a/ in Mil -nuka ~ -n·uka 'causative' is presumably by analogy with Mil -naka 'indirect causative'.

Synchronic monosyllabic verbs in Lake Miwok, such as Mil ?é·c < PMi *?e·čy 'to sleep', seem historically to have been disyllabic, ending in *-Y. Sometimes there is synchronic evidence for this second vowel in iterative stems, such as Mil ?éc·u-ṭa 'to rape'.

The Lake Miwok iterative suffix -ṭa follows historic Long Stems in both Mil ?ó·ni-ṭa 'to come in a group' and Mil ?ú·ku-ṭa 'to go in, one by one'. Historic Long Stems are sometimes associated with Simplex Grades in various constructions, such as Mil ?ón-ṭe-ṭa 'to parade', with two iterative suffixes, -ṭe and -ṭa; Mil ?éc-ko-pa-ṭi 'oversleeping: sleep-adjective-intensive' and the Lake Miwok semelfactive ?úk-an 'to enter', although the suffix -an is of uncertain origin.

These facts suggest that Mil ʔé·la 'to play' should be considered a Long Stem, and the puzzling verb 'ʔelá-k-te' 'to play, have fun' might be based on a Reduced Grade of the former, although the suffixal material cannot be explained at present.

I will end this article with a final example of how the interplay between synchronic and diachronic processes can explain irregularities. Historic dentals and alveolars often become Lake Miwok /d/ when stress does not precede. I call this process "hardening," and it is a sound change in progress. Examples now follow:

Mil kedék·u 'five' < PMiw *kenék·uṣ 'five'

Mil ʔedá·k 'long' < PMiw *ʔená·k 'long'

Mil pác·adak 'six' < PMiw *pač·i-ṭak 'six'

Mil ṣíc·ini ~ ṣíc·idi 'dew patch'

Mil jutú·d-ud-uṣi 'to have the shakes < PMi *jytyt-. The lengthening of the first vowel comes about because of Morphophonemic Stress Shift in Lake Miwok. -VC- denotes uncontrolled action, and -Vṣi is a repetitive suffix. Hence //*jutut-ut-uṣi// > *jutú·t-ut-uṣi by Morphophonemic Stress Shift. *jutú·t-ut-uṣi > jutú·d-ud-usi through hardening and regressive assimilation.

Mil luw·ú(·)d-ud-uṣi 'to shiver' < PMi liw·yṭ 'shaking, chills' underwent a similar development, with vowel assimilation.

Mil k̇owó·lodoṣi 'to growl (intestines)' is synchronically irregular, but historically explainable. Mil *k̇owó·lo- < Wph ko·woro 'to growl (intestines)' DU, with analogical length and stress shift to fit the pattern of other repetitive verbs. Mil *k̇owó·l-ol-oṣi > k̇owó·l-od-oṣi through hardening.

## NOTES

1. This article is an expanded version of a paper presented on June 27, 1992, before the 1992 Hokan-Penutian Conference in Santa Barbara, California.

The following abbreviations have been used: Mil 'Lake Miwok', PMi 'Proto Miwok', PMiw 'Proto Western Miwok', Wph 'Hill Patwin'; KW, taken from Kenneth Whistler (1981); DU, taken from Donald Ultan's field notes. A question mark indicates uncertainty concerning a reconstruction or a derivation.

/c/ is [ts] in Lake Miwok. /j/ is [y], /y/ is [ɨ], and //Y// is /u ~ o/ if the vowel in the preceding syllable is /u/ or /o/. //Y// is /y/ elsewhere.

## REFERENCES CITED

Callaghan, Catherine A. 1963. *A Grammar of the Lake Miwok Language*. Ph.D. dissertation, University of California, Berkeley.

_____. 1964. "Phonemic Borrowing in Lake Miwok." *Studies in California Linguistics* (ed. by William Bright), pp. 46-53. University of California Publications in Linguistics 34. Berkeley and Los Angeles: University of California Press.

-----. 1972. "Proto Miwok Phonology." *Anthropological Linguistics* 13:448-456.

_____. 1986. "Miwok Ablaut Grades." *Occasional Papers on Linguistics* 13:105-114. Department of Linguistics, Southern Illinois University at Carbondale.

_____. 1987. "Lake Miwok Naturalization of Borrowed Phonemes." *The Ohio State University Working Papers in Linguistics no. 35: A Festschrift for Ilse Lehiste* (ed. by Brian D. Joseph and Arnold Zwicky), pp. 84-93. Department of Linguistics, Ohio State University.

_____. 1988. "Proto Utian Stems." *In Honor of Mary R. Haas: From the Haas Festival Conference on Native American Linguistics* (ed. by William Shipley), pp. 53-75. Berlin: Mouton de Gruyter.

Freeland, L. S. 1951. *Language of the Sierra Miwok.* Indiana University Publications in Anthropology and Linguistics, Memoir 6 of the *International Journal of American Linguistics*. Bloomington, Indiana.

Whistler, Kenneth W. 1981. "Ablaut in Hill Patwin." *Survey Reports 1981*:42-94. Reports from the Survey of California and Other Indian Languages, Report no. 1. Berkeley, California.

# MAIDUAN NOUN PHRASE STRUCTURE*

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## 1 Introduction

In Maidu, a language that was once spoken in the Northern California Sierra, the ordering of nominal elements is as shown below in (1).

(1) *Ordering of Nominal Elements*

Possessor or Determiner
Numeral
Modifiers[1]
Head Noun

As in English, the possessor and determiner are in complementary distribution, as the examples in (2) show.[2]

(2) *Complementary distribution of possessor & determiner*

(a) ʔuni-im wepa-im
prox-ATTR coyote-NOM
'this coyote'

(b) wepa-ik kyle-im
coyote-GEN woman-NOM
'the coyote's wife'

(c) *wepa-ik ʔuni-im kyle-im 'coyote's this wife'
*ʔuni-im wepa-ik kyle-im '[this [coyote's] wife]'[3]

Numerals are rarely used in Maidu for anything but counting, but if they are present as nominal elements, then they appear in the position between the determiner or possessor and any modifiers. This is shown by the examples in (3).

(3) *Position of numerals*

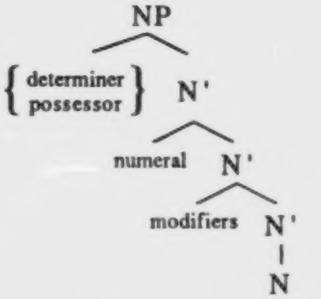
(a) ʔuni-im sapy-im tete-im wepa-im
prox-ATTR three-ATTR big-ATTR coyote-NOM
'these three big coyotes'

(b) wepa-ik sapy-im tete-im kyle-im
coyote-GEN three-ATTR big-ATTR woman-NOM
'the coyote's three big wives'

Although there is a fairly strict ordering among the different types of modifier (see note 1), I will assume throughout this paper that this ordering is not necessarily structurally defined. By a "structurally defined" ordering I mean that two elements in a hierarchical structure each have a uniquely defined position in that structure. Justification for structurally defined ordering must come from evidence independent of and in addition to relative ordering. Such independent evidence is not available to distinguish the different types of modifiers in Maidu, and so the relative ordering between them can be left structurally undefined.

I do assume, however, that the ordering among the categories of elements in (1) *is* structurally defined, and the precise structural definition of that ordering is the focus of this paper. Assuming the X-bar theory of phrase structure (Jackendoff (1977) and others), there are (at least) two possible representations of the structure of the noun phrase in natural languages. The first is the representation in which the category N (the noun) is the head of the projection NP (noun phrase). This representation is shown below in (4).

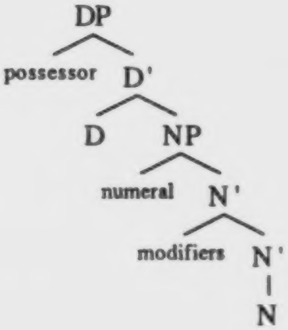
(4) *NP-structure*



As shown in (4), the complementary distribution between determiners and possessors is neatly captured in the NP representation because it is structurally defined: both of these elements occupy the same Specifier of N (sister to N') position. However, in this NP-structure, one must assume that both the numeral and modifiers are left Chomsky-adjoined to the N' position. By not giving the numeral a unique position in the NP-structure, its strict order before modifiers is not adequately accounted for. The representation in (4) could have just as easily had numerals ordered after modifiers, in direct contradiction of the facts.

Another representation of the noun phrase available within X-bar theory is one in which the category D (determiner) is the head of the projection DP (determiner phrase). D in turn takes an NP as its Complement, the head of which is N as in (4). This structure consists of two phrases rather than one, and thus has more distinct positions available in it, as shown in (5).

(5) *DP-structure*



This representation readily accounts for the ordering between the numeral and modifiers by offering the numeral the unique position of Specifier of N within the structure, with modifiers still left Chomsky-adjoined to N'. However, it seems that this representation lacks the ability to account for the complementary distribution between the determiner and the possessor by not giving them the same structural position. The possessor resides in the Specifier of D position, and D itself is the position for the determiner.

This paper shows that the representation in (5), henceforth 'the DP-structure', is the correct representation for the Maidu noun phrase within current assumptions of X-bar theory, as opposed to the representation in (4), henceforth 'the NP-structure'. This position is supported by independent evidence for a unique position for the numeral in the Maidu noun phrase, presented in §2. §3 is a look at the noun phrase in Nisenan, another Maiduan language, which adds support to the DP-structure as opposed to the NP-structure. Finally, in §4, the complementary distribution between determiners and possessors, not readily accounted for by the DP-structure, is shown to be the effect of an independent principle within the framework of Government and Binding (e.g. Chomsky (1981), henceforth GB), as argued in Abney (1987).

## 2 A Unique Position for the Numeral

In Maidu, noun phrases consist of many combinations of the ordered elements listed in (1). Although it would seem that the only obligatory element is the head noun, this is not entirely true. What is obligatory is *either* a modifier *or* a head noun. Examples of this are shown in (6). The reader is asked to imagine that a Maidu speaker is being asked "At whose houses did you stay?", with the examples in (6a-b) as possible answers, and the example in (6c) as an impossible answer due to its ungrammaticality.

(6) *Modifier or head noun obligatoriness: "At whose houses did you stay?"*

(a) wepa-ik pene-im hybo-di
coyote-GEN two-ATTR house-LOC
'at the coyote's two houses'

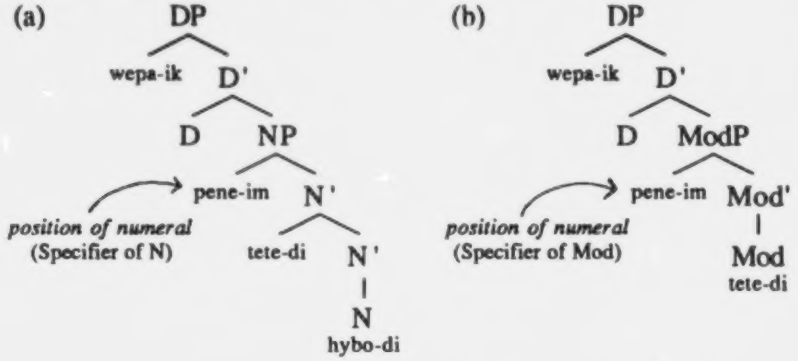
(b) wepa-ik pene-im tete-di
coyote-GEN two-ATTR big-LOC
'at the coyote's two big ones'

(c) *wepa-ik pene-di
coyote-GEN two-LOC
'at the coyote's two'

What is most interesting about these examples is that they show the striking difference between numerals on the one hand and modifiers on the other. Modifiers are able to be left as the stand-in "head" of the noun phrase if the head noun is missing, as shown in (6a-b), while numerals are not, as shown in (6c). This shows that a distinction between numerals and modifiers is absolutely necessary.

It is clear that only the DP-structure makes the proper structural distinction between numerals and modifiers, by giving the numeral a unique location within the noun phrase. By allowing D to have as its Complement either an NP or a ModP,[4] and by having the numeral occupy the Specifier position of whatever projection is the Complement of D (NP or ModP, with adjunction of subsequent modifiers to either N' or Mod'), then this necessary distinction is made structurally, a favorable consequence. The structures of (6a) and (6b) are shown below in (7).

(7) *Structures of (6a) and (6b)*


(a)
DP
wepa-ik
D'
D
NP
pene-im
N'
position of numeral
(Specifier of N)
tete-di
N'
N
hybo-di
(b)
DP
wepa-ik
D'
D
ModP
pene-im
Mod'
position of numeral
(Specifier of Mod)
Mod
tete-di

With this DP-structure of the noun phrase, it is clear why sentence (6c) is ruled out: if the entire Complement of D is missing, there is nowhere in the structure for the numeral to reside. It must have a Specifier position of either NP or ModP to reside in, and the presence of such a Specifier position entails the presence of the rest of the phrase, head and all. The NP-structure, on the other hand, makes no such prediction, because it fails to make a structural distinction between numerals and modifiers. In the following section it is shown that this distinction is crucial in order to account for the position of the numeral in the Nisenan noun phrase.

## 3 The Nisenan Noun Phrase

In Eatough's (1991) grammar of Central Hill Nisenan, it is shown that the noun phrase in Nisenan is different than the noun phrase in Maidu in one important respect. The numeral, if any, occurs rightmost in the phrase in Nisenan, as shown in the example in (8).

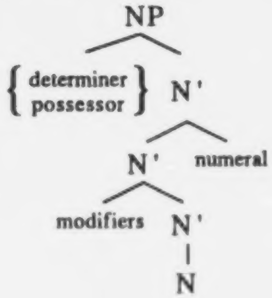
(8) *The Nisenan noun phrase*

| | | |
|---|---|---|
| my-im | laj-im | peːn-i |
| that | child-ATTR | two-ACC |

'the two children'

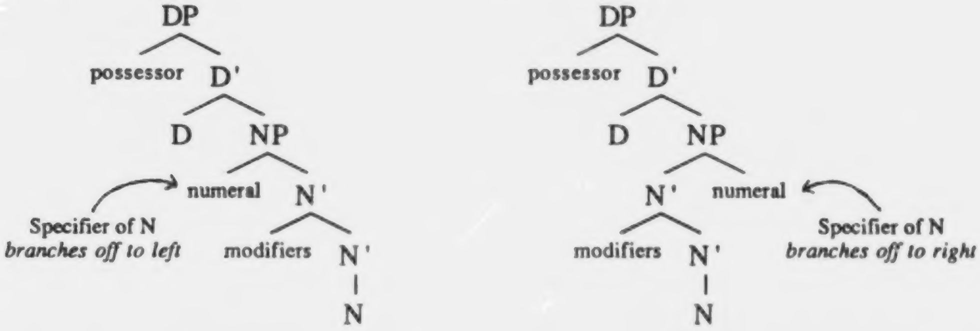
To account for this with the NP-structure, where both numerals and modifiers are Chomsky-adjoined to N', one must stipulate that numerals are right Chomsky-adjoined while modifiers are left Chomsky-adjoined, to obtain the structure in (9).

(9) *NP-structure (Nisenan)*


NP
determiner
possessor
N'
N'
numeral
modifiers
N'
N

This type of discrepancy between adjunctions, especially within the same phrase, is virtually unheard of in the X-bar literature. With the DP-structure, all that must be said is that the Specifier of N position branches off to the left in Maidu, while it branches off to the right in Nisenan. These two structures are shown in (10).

(10) *DP-structure*



(a) *Maidu*

(b) *Nisenan*

At first, this may seem like the same type of solution offered in (9): the numeral is allowed to "pivot" to the right to account for Nisenan. However, the results are not the same. In (9), a discrepancy is allowed between adjunctions of modifiers and numerals within the Nisenan noun phrase, which as I've noted is unheard of in the X-bar literature. In (10), on the other hand, a discrepancy is allowed between syntactic categories in Nisenan. Specifier of N is allowed to branch off to the right in Nisenan, unlike Specifier of D, which branches off to the left.

Unlike the discrepancy in (9), however, this is allowed for by X-bar theory, which claims that languages can individually set the order of the universally unordered pairs of phrasal elements (Specifier, X') and (Complements, X), where X is a syntactic category. Some languages set the order of these pairs across the board, such that one order for each pair is true of each and every syntactic category.[5]

Other languages such as Tzotzil, a Mayan language, can set the order of these pairs in a different fashion. Aissen (1992) shows that Tzotzil has the order X—Complements for all syntactic categories, but that the order of Specifier and X' depends on whether X is a lexical category (noun, verb, adjective, etc.) or a functional category (determiner, inflection, etc.). Lexical categories are shown to have the order X'—Specifier, while functional categories are shown to have the order Specifier—X'. X-bar theory, then, correctly allows for these and other conceivable discrepancies between syntactic categories, and so the proposal in (10) falls in neatly within the assumptions of the theory.

This look at the Nisenan noun phrase is not simply a comparative one; in that case, the proposals in (9) and (10) are indeed equally valid. The distinction between the proposals can only be seen once it is accepted that the theory of X-bar phrase structure, claiming to be universal, attempts to be as restrictive as is necessary to characterize all and only the natural languages of the world. The parametric ordering of the universally unordered phrasal elements is already necessary within the theory, given the wide variety of word orders in the languages of the world. The discrepancy of ordering between different syntactic categories within a single language is also necessary, given the facts of Tzotzil.[6] This can be seen as a special case of the general ability that languages have of determining the order of phrasal elements. Different types of adjunction within a phrase as in (9), however, cannot be likewise defended, because it allows a wide range of possibilities of adjunction that are simply not attested in the world's languages.

## 4 Complementary Distribution (CD) of Determiner and Possessor

I have shown in §2 and §3 that the DP-structure seems to be the best representation of the noun phrase in Maidu within the assumptions of the X-bar theory of phrase structure. However, the problem mentioned in §1 still stands: the DP-structure does not seem to be able to account for the complementary distribution (CD) between the determiner and the possessor, because it does not grant them a common structural position. This CD, though common, does not hold cross-linguistically, and so some form of structure with distinct positions for determiners and possessors is certainly needed within any theory of universal grammar.[7] But if a language like Maidu seems to need to structurally express this CD, then why posit a structure that does not directly express it?

Abney (1987) argues that the DP-structure is the correct representation for the noun phrase in English, where there is also CD between determiners and possessors. The CD, Abney claims, follows from the requirement in GB that phonetically realized noun phrases receive structural case (Case). This is stated as the Case Filter in Chomsky (1981), repeated below in (11). I enclose in brackets the appropriate translation of the Case Filter under the assumption that the DP-structure is the representation of the noun phrase.

(11) *The Case Filter (Chomsky (1981))*

*NP [*DP], where NP [DP] has a phonetic matrix but no Case.

It is assumed that noun phrase objects (Complements) of verbs receive Accusative Case from the verb. Intransitive verbs, then, can be understood as verbs that cannot assign Accusative Case, and therefore do not take a Complement because the presence of one would violate the Case Filter.

Noun phrase subjects and possessors in English, on the other hand, are assumed by Abney to receive Nominative and Genitive Case, respectively, from the functional categories Infl(ection) and D(eterminer), respectively. Under Abney's analysis, these noun phrases reside in the Specifier position of these functional categories: subjects in Specifier of Infl, possessors in Specifier of D. However, it has been known for a while that not all instantiations of Infl assign Case to a subject: the infinitival Infl *to* presumably does not assign Case, and this is given as partial explanation as to why there are no overt subjects of certain infinitival complements in English such as *John wants to go*, where the implicit subject of *to go* is *John*.[8]

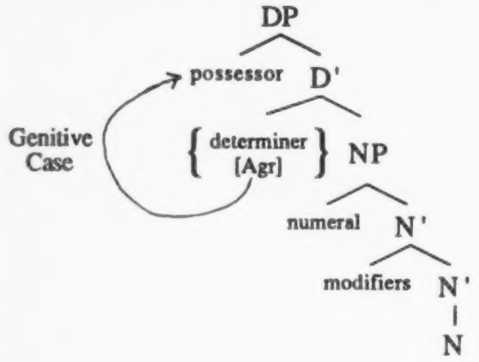
The story goes that *to*, the only phonetic instantiation of Infl in English, lacks the crucial property of being able to assign Case. This is said to be a direct consequence of the fact that infinitival complements lack agreement: since it is assumed that Infl is the category that carries all agreement features, then *to* can be said to lack agreement features. Thus, it can be said that Agr(eement) is the property of Infl that assigns Case to Specifier of Infl.[9]

Abney extends these arguments for Infl to the category D. If D also has two types of instantiations, those that have Agr and those that do not (i.e. those that assign Case and those that do not), then the CD between determiners and possessors can be accounted for.[10] If Agr is assumed to be the only element that can assign Case to Specifiers of functional categories, then what can be said is that the phonetic instantiations of D in English, just like phonetic Infl *to*, lack Agr and therefore cannot assign Case to their Specifiers.

This way, the CD between determiners and possessors is really the surface representation of an underlying CD between two types of D: phonetically realized Ds that lack Agr (the determiners) and hence cannot assign Case to a possessor, and phonetically unrealized Ds that have Agr and thus *can* assign Case to a possessor. These elements, of course, have the same structural position, which structurally entails that they are in CD.[11]

The same story that Abney gives for English, presumably, can be said for Maidu. Phonetically realized determiners are in CD with phonetically unrealized Agr, which is what must be present to assign Case to a possessor. This is all shown by the structure in (12).

(12) *CD between phonetic determiners and Agr*



In this structure, the only way for a possessor to be present in Specifier of D position is for it to receive Genitive Case from Agr in D, which is in CD with the phonetically realized determiners in Maidu. Thus, on the surface, possessor and determiners are in CD.

To conclude, I'd like to mention that the data in Maidu, particularly the structure of the sentence and the structure of modifier phrases, must be more carefully examined in order for any very strong conclusions to be made. However, it seems clear that given the universal assumptions of X-bar theory and the restrictiveness of GB, a working representation of the noun phrase is possible, and this representation is closer to that available with the DP-structure as opposed to the NP-structure.

The adoption of the DP-structure as the representation of the Maidu noun phrase is in line with current assumptions within GB, and the reader is referred to Abney (1987) for further motivation for the DP-structure of noun phrases in English and other languages. The arguments put forth there are very conclusive for English and some other languages, and the data in the Maiduan languages presented here support the hypothesis that the DP-structure is the universal structure of the noun phrase.

## Notes

[*] All data considered in this paper are from William Shipley, personal communication, and from Shipley (1963) and Shipley (1964). All errors are of course my own.

[1] What I refer to with the blanket term "modifier" are inherent adjectives and derived adjectives, and other attributive phrases (nominalized predicates and nominal complements). The reader is referred to Shipley (1964:33-37) for more discussion of these and other prenominal elements.

[2] In the examples given in this paper, NOM denotes the nominative case marker -im, ACC the accusative -i, GEN the genitive -ik, and LOC the locative -di. Another marker I will be referring to is the ATTRibutive -im suffix, which marks all prenominal elements except the possessor.

[3] The possible grammatical interpretation of the second sentence in (1c) as '[[this coyote's] wife]' should not be surprising, since the possessor in Maidu can be a full noun phrase with its own prenominal elements.

[4] I use ModP here as a cover term for all modifier phrases (see note 1). The internal structure of each type of modifier phrase is not discussed here.

[5] English is one of these languages, in which the orders Specifier—X' and X—Complements are set for all syntactic categories.

[6] Many other languages, such as German, exhibit this discrepancy as well. German verb phrases are uniformly right-headed, while prepositional phrases, with only a couple of arguably lexicalized exceptions, are left-headed (hence *pre*positional).

7 For instance, Abney (1987:17-18) gives examples from Hungarian, a well-known language without CD between determiners and possessors.

8 In the sentence *John wants Mary to go*, it is argued that *Mary* receives Accusative Case by Exceptional Case Marking (ECM) from the verb *wants*. This can be seen by substituting *Mary* with a pronoun: *John wants me to go*, **John wants I to go*.

9 The reader is referred to the GB literature (e.g. Chomsky (1981)) for more on Agr, Case, and related areas.

10 The presence of some type of Agr in the noun phrase is independently motivated for languages that exhibit any type of agreement within the noun phrase (e.g. German, Romance languages).

11 Notice that even though CD between determiners and possessors is structurally defined in the NP-structure, all these assumptions about Case assignment and Agr do not have clear resolutions assuming that representation of the noun phrase. Case to possessors must be assigned by the *lexical* category N in the NP-structured noun phrase, and this is in contrast to the assignment of Case to subjects by the *functional* category Infl in the sentence.

## References

Abney, Steven P. (1987) *The English Noun Phrase in its Sentential Aspect.* PhD Dissertation, M.I.T., Cambridge.

Aissen, Judith. (1992) *Linguistics 217: Mayan Syntax.* Graduate seminar class notes, University of California, Santa Cruz.

Chomsky, Noam. (1981) Lectures on Government and Binding. Foris Publications, Dordrecht.

Eatough, Andrew. (1991) *Central Hill Nisenan: Grammar, Wordlist, and Texts.* ms., University of California, Santa Cruz.

Jackendoff, Ray. (1977) X-bar Syntax. MIT Press, Cambridge.

Shipley, William F. (1963) Maidu Grammar. University of California Press, Berkeley.

_________. (1964) Maidu Texts and Dictionary. University of California Press, Berkeley.

_________ and Eric J. Baković (in progress) *Maiduan Comparative Grammar and Lexicon.* ms., University of California, Santa Cruz.

# An early Diegueño wordlist

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Early recordings of American Indian languages, no matter how short or deficient in phonetic detail, provide an invaluable window into the past and often yield nuggets of important information to those able to interpret them. I do not know what the very earliest written record of Diegueño[1] is, but some lexical information was certainly collected as early as 1832 by Thomas Coulter (Grant 1992), i.e. only some sixty years or so after the founding of the first mission in the area, Mission San Diego de Alcalá in 1769. While the missions had an enormously disruptive effect on the lives and cultures of the local inhabitants, it can be assumed that the linguistic situation in the middle of the nineteenth century was considerably closer to the pre-contact one than that found by recent field workers.

This paper examines the contents of an early substantial wordlist, collected by Alex. S. Taylor in Baja California in 1856 (Taylor 1860).[2] It turned out to be of considerable interest since it records a sample of the speech of an individual living in the southwesternmost part of Diegueño territory, in a location where no known speakers are residing today, i.e. Mission San Miguel in Baja California (established 1787), on the Pacific coast. The exact location is not too clear, since two sites are possible: a village just north of the city of Ensenada identified on modern maps as San Miguel Village or, probably more likely, a location identifed on modern maps as La Mision (San Miguel de la Frontera, ruins). The latter also is more compatible with Taylor's statement that it is some thirty miles south of San Diego, while San Miguel Village is some twenty miles further south.

This list is quite extensive in that it contains some 198 items which, while recorded in the usual idiosyncratic fashion of non-linguist English speakers, are nevertheless quite usable by someone with knowledge of the local languages.

I want to make a number of observations suggested by this wordlist and, to give the flavor of it, I have copied the list as an appendix to this paper using the glosses and words in the orthography of the source.[3] This also gave me the opportunity to add to the list annotations which hopefully will enhance its usefulness to the reader. So I have numbered the entries for ease of reference and have added an extra column showing the presumed equivalent of the words in modern Mesa Grande Diegueño ('Iipay) speech.[4] In the few cases where no Mesa Grande equivalent could be found, but where equivalent items are attested in other Diegueño languages, the source is indicated (K = Kumeyaay-Tiipay, T = Tiipay). Unrecognizable words are indicated by ? and words listed more than once with different glosses give in parentheses the meaning of the earliest mention of the word in question for cross-reference. Transparent phrases are also glossed in parentheses.

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[1] Diegueño is a subgroup of the Delta-California branch of Yuman languages and consists of at least three languages: 'Iipai, Kumeyaay, Tiipay (Langdon 1990).

[2] I am grateful to Florence Shipek for reminding me recently of the existence of this list, of which I had made a copy some years ago, but which I had not previously studied. She also kindly gave me the full citation for this article which I had somehow lost, as well as much information on the missions of Northen Baja California.

[3] I did not xerox the list itself because my copy of it is in extremely small print and rather faint, but I would be glad to make a copy available to anyone wishing it.

[4] The Mesa Grande forms are in the orthography of the published dictionary by Couro and Hutcheson (1973), where apostrophe is glottal stop, long vowels are written double, e is schwa, sh is apico-alveolar [ṣ], tt is the apico-alveolar stop [ṭ], nn the apico-alveolar nasal [ṇ], h is [x], ch is [č], ll is the voilecess apico-alveolar lateral [ɬ], rr is trilledor tap r, palatalized and labialized consonants are written as clusters.

More observations on the contents of the San Miguel list can now be made. Remarkably, only 24 entries do not suggest a known word, though some of them suggest as least a portion of a word, but I have been rather conservative in giving a known correspondence. Several have to do with marine animals and other concepts related to the sea which are not known to modern speakers who no longer reside in shore areas, so we have 'boat of tule' (198), 'aulones' (i.e. abalone 121),[5] 'sea muscles' (sic! 120), 'fish' (122), 'sea otter' (81). There are 11 words that have no counterpart in Mesa Grande ('Iipay), but 9 of them can be found in Kumeyaay-Tiipay, 1 in Tiipay only, and 2 are Spanish loans.

There are also a number of semantic misunderstandings, a situation probably encountered by all field workers on first contact with a previously unknown language. I do not know who Taylor was nor whether he knew Spanish, but the elicitation situation was probably not optimal. Some of the descriptions which he gives of Baja California and its native inhabitants are quite reliable and on the whole, Taylor was a keen observer.

Semantic difficulties of various kinds were handled by the speaker in a rather delightful way: he would simply answer *'ehan*, 'good' when asked for 'spring (the season)' (68), 'handsome' (136), 'live, life' (138), 'I' (142), 'he' (144), 'this' (148), 'that' (149), 'who' (152), 'yes' (157). He gave the word for 'bad' when asked for 'ugly' (137), and 'acid' (171). Some responses are due to confusion, as when the word for 'man' (3) is given as the equivalent of 'girl' (6), some are items for which English has several words corresponding to a single word in Diegueño. Thus, 'face' (19) and 'eyes' (22) are not distinguished in the languages, nor are 'woman' (4) and 'wife' (11), nor 'blue' (126) and 'green' (128). There are problems with pronouns (another notorious source of confusion in elicitation which I, for one, encountered in every field methods class I ever taught), where (145) is glossed 'we' rather than 'I', (146) is glossed 'you' rather than 'you all', (147) is glossed 'they' rather than 'you plural'. When all duplications and other problems are excluded, there remain 132 valid forms which have modern equivalents, or close to 65% of the total, a remarkably high number given all the complications of a short first contact.

Phonetically, it is not surprising that some distinctions do not appear although that is unfortunate for some are truly diagnostic of which Diegueño language may be involved.

The truly surprising thing is that so much of the bulk of the wordlist matches the modern speech of Mesa Grande, the northernmost 'Iipay Diegueño speech variety. In Langdon (1990) I gave evidence for the proposal that there are in fact some three Diegueño languages, closely related indeed, but quite distinct nevertheless. To remind you of the distribution of these 3 entities, I reproduce below the map published in that paper where the territories of the three languages 'Iipay, Kumeyaay, and Tiipay are tentatively outlined. To this map I have added Sycuan (a location inexplicably omitted from the 1990 map) as well as the two possible locations of San Miguel, the site of Taylor's elicitation. For ease of location, Sycuan and the other important locations discussed in this paper (Mesa Grande, La Mision and San Miguel Village) are boldly circled on the map. Please note that La Mision and San Miguel Village are in the southwesternmost part of Diegueño territory. One would therefore assume that the most likely affiliation of the speech of San Miguel would be with neighboring Tiipay, which does not turn out to be the case. In fact, only one word 'crown of feathers for chief' (187) can unambiguously be identified at Tiipay and not one of the other languages and may in fact turn out to be a borrowing from Paipai, a member of the Pai subgroup of Yuman. While of course a fairly large number of words are shared throughout the Diegueño area, there are enough diagnostic items that suggest a close link to 'Iipay, the northernmost language area. Thus,(3) 'man',(5) 'boy', (8) 'father', (16) 'Indian' (which gives the language its name) have other forms in non-

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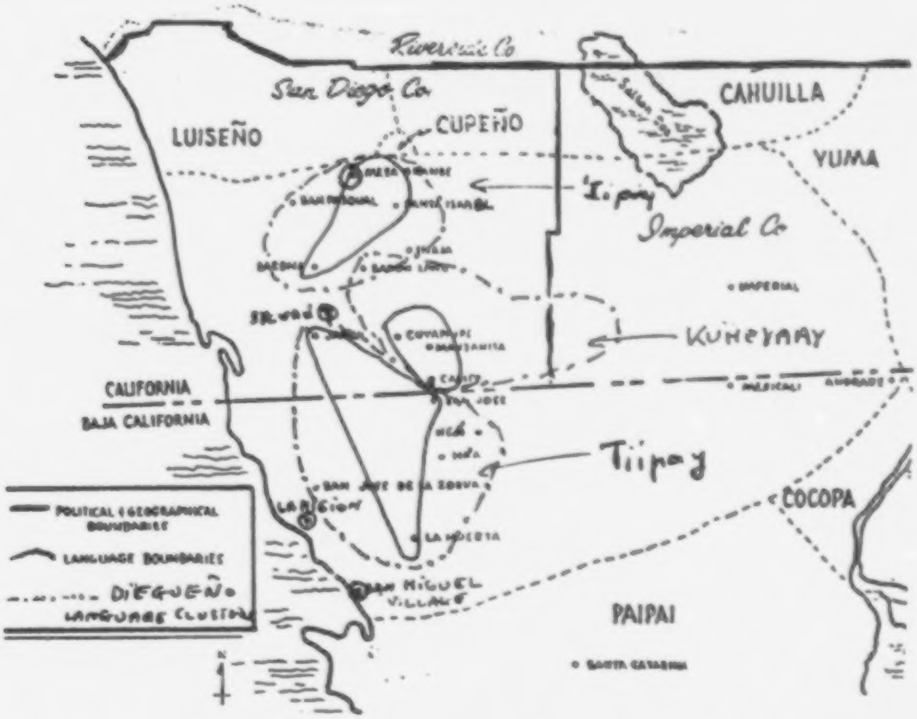
[5] I am grateful to Michael Nichols for pointing out to me that 'aulones' it to be interpreted as 'abalone'.

'Iipay varieties; 'egg' (114) which literally means 'quail seed' contains the equivalent of the word for 'seed' *eyach* in 'Iipay, which is recorded as *teyach* in non-'Iipay dialects. The word for 'dead' (139) is *mespaa* in non-'Iipay dialects, and 'speak' (179) which is an imperative form of a verb stem *aayp*, has a stem *kwarkwar* elsewhere. Of the 9 forms marked K (Kumeyaay-Tiipay), only 5 are truly diagnostic, the others are words for which no equivalent of the English is found in 'Iipay, which now uses loanwords, but for which native words must have existed in 'Iipay at one time.

But the most startling fact is evidence for a purely 'Iipay trait which is puzzling but very well attested. In a few words, 'Iipay has a final *-ly* following what is in other varieties a final stressed high front vowel, so we have 'leg' (42) which clearly ends in an *-l (ly)* type sound as opposed to modern Tiipay and Kumeyaay where this segment is not present. The next two items (43) 'feet' and (44)'toes' are obviously a form of the same word but with the *-ly* absent and so here we have both forms coexisting in the speech of a single person. Items (59) 'axe of stone' and (95) 'stone, rock' are the same word, again with *-ly*. The origin of this phenomenon is far from clear but it seems to be an 'Iipay innovation, since no other Yuman language has this feature.

On the other hand, there is another distinctive feature of 'Iipay which appears to be absent in our list, namely that, corresponding to Yuman *sh* [ʂ], and in some odd evironments, 'Iipay has *h* [x], but San Miguel (46) 'vulture' ('eagle' in Mesa Grande) and 'whale' (47) have preserved *sh* rather than *h*. The entry for 'summer' (69) (Mesa Grande 'roast') may be another example since [s] and [ʂ] are sometimes hard for speakers of English to distinguish, and perhaps also 'sleep' (178) where, however, we have *ch* instead of expected *sh*. What to make of (29) and (30) 'arm, hand' is not clear and I will not try to account for them. Since the number of words subject to this change is limited, the San Miguel forms showing lack of sound shift represent a significant sample.


Riverside Co
San Diego Co
LUISEÑO
CUPEÑO
CAHUILLA
YUMA
MESA GRANDE
'Iipay
Imperial Co
IMPERIAL
KUMEYAAY
CAMPO
SAN JOSE
MEXICALI
ALGODONES
CALIFORNIA
BAJA CALIFORNIA
Tiipay
SAN JOSE DE LA ZORRA
LA MISION
LA HUERTA
COCOPA
SAN MIGUEL VILLAGE
PAIPAI
SANTA CATARINA
POLITICAL & GEOGRAPHICAL BOUNDARIES
LANGUAGE BOUNDARIES
DIEGUEÑO LANGUAGE CLUSTER
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So what does it all mean? There are obviously any number of possible hypotheses, one being that the speaker interviewed was originally from 'Iipay territory. This would not be unheard of because a lot of moving within the area is well authenticated as well as intermarriage. Taylor tells us the following about the speaker he interviewed:

> The foregoing vocabulary of the Indians of San Miguel Mission, formerly belonging to the Dominicans, and situated on the Ocean Coast some thirty miles south of San Diego, was given to me by an Indian neophyte about forty-five years of age... He was in his youth more or less acquainted with the Indians of the neighboring Missions of Santo Thomas, San Vicente, Santo Domingo, Santa Rosaria, and San Fernando Vellicata, the last one within one hundred miles of San Miguel to the south.... The Indians of Santo Thomas spoke nearly the same language as those of San Miguel, as also did many of those living at Santa Catalina... The indians of the first-named five Missions all spoke about the same language.

The statement about Santo Thomas and Santa Catalina (modern Santa Catarina) could be interpreted to mean that people at these missions spoke related languages (Yuman), but not necessarily Diegueño, though a dialect of Diegueño referred to as Ko'all was spoken until recently at Santa Catarina, where the main language is Paipai. Santo Thomas, some 50 miles south of La Mision, is not likely to have been in Diegueño territory but its residents probably spoke a Yuman language or a language related to Yuman.

Another possibility is to ask wether there may have been other speech varieties sharing the features of San Miguel, possibly spoken closer to 'Iipay territory. It turns out there is indeed such a variety, namely the Diegueño speech of Sycuan. I had always assumed that Sycuan would be Tiipay or Kumeyaay, because of its geographical proximity to these areas, but it turns out to have the same diagnostic lexical items pointing to 'Iipay affiliation as San Miguel including the items with final *-ly*, but excluding the *sh* to *h* shift. This is attested in Bright's (1960) fieldnotes taken during a survey of Diegueño dialects, and is supported by lexical information I collected at Sycuan in the spring of 1992.

It is relevant also to point out that Waterman (1910) states that Northern Diegueño (='Iipay) includes Sycuan, though he does not say what his evidence for this statement was.

Another relevant fact is that while some works divide Diegueño territory into Northern and Southern dialects, others talk about Eastern and Western. Perhaps the latter is a better description and would be more consistent with the facts presented here. It should be pointed out that the coastal regions were some of the first to lose their inhabitants in this area (note that the map, which focuses on present-day Indian communities with the exception of the two San Miguel sites, does not show any on the coast). So if we assume that 'Iipay territory is what remains today of a North-western speech continuum, we could say that it included Sycuan and had its southern boundary perhaps as far south as La Mision.

What this does to my division into three languages, I am not totally ready to say. There seems to be, however, an intermediate area between 'Iipay and Kumeyaay-Tiipay which is lexically like 'Iipay but has not been subjected to the sound change *ṣ* to *x*, which is limited to 'Iipay as defined on the map. Perhaps one could distinguish Northern 'Iipay from Southern 'Iipay. I obviously have to do a lot more thinking about this. Perhaps other old Diegueño wordlists will throw more light on this question.

## References

Bright, William. 1960. Unpublished Diegueño fieldnotes.

Couro, Ted and Christina Hutcheson. 1973. *Dictionary of Mesa Grande Diegueño*. Banning, California: Malki Museum Press.

Grant, Anthony P. 1990. Handout distributed at the Hokan-Penutian Languages Workshop held at Santa Barbara, California.

Langdon, Margaret. 1990. Diegueño: How Many Languages? Proceedings of the 1990 Hokan-Penutian Languages Workshop. *Occasional Papers on Linguistics 15.* Carbondale, IL: Southern Illinois University.

Taylor, Alex S. 1860. The Indianology of California. *The California Farmer* 13:13:98 (May 18, 1860)

Waterman, T.T. 1910. The Religious Practices of the Diegueño Indians. *UCPAAE* 8:271-358.

## CALIFORNIA NOTES

by Alex. S. Taylor

### The Indianology of California
(continued)

No. 11 San Miguel Mission Indians (Lower California).

*Vocabulary of the Indians living near the Mission of San Miguel, in Lower California, thirty miles south of San Diego on the Ocean Coast, taken by the author in November 1856.*

| ENGLISH | INDIAN | Mesa Grande |
|---|---|---|
| 1 God | Maha | 'emaay 'ehaa |
| 2 wicked spirit | chelitch | 'ichillich |
| 3 man | ecutch | 'iikwich |
| 4 woman | ysing | 'esiny |
| 5 boy | ylemoy | (='child') |
| 6 girl | ecutch | (='man') |
| 7 infant, child | ylemom | 'ilymaam |
| 8 father | enaul | 'enaly |
| 9 mother | etal | 'etaly |
| 10 husband | n'yecutch | 'iikwich |
| 11 wife | ysing | (='woman') |
| 12 son | ecutchilemam | 'iikwich 'ilymaam |
| 13 daughter | sin elemam | siny 'elymaam |
| 14 brother | ysimile | 'echamaly |
| 15 sister | y chan | 'echany |
| 16 an Indian | hy pai | 'iipay |
| 17 head | hho | 'huu('nose') |
| 18 hair | haltah | hellytaa('head,hair') |
| 19 face | hiy ud | 'eyiiw |
| 20 forehead | pushlomay | hallumi(K) |
| 21 ear | eh'hamul | 'ehemall |
| 22 eye | eyuh | (='face') |
| 23 nose | nariz | (Sp) |
| 24 mouth | ah | aa |
| 25 tongue | anapillk | anepall |
| 26 tooth | ayou | eyaaw |
| 27 beard | alami | alemii |
| 28 neck | amaet | (='body') |
| 29 arm | ahiell | 'esally |
| 30 hand | ahiell | (='arm') |
| 31 Indian shoes.. | hamayou | hemenyaaw |

| ENGLISH | INDIAN | Mesa Grande |
|---|---|---|
| 101 grass | simi | semaay |
| 102 oak | esnow | 'esnyaaw |
| 103 pine-tree | ha-yahl | ? |
| 104 redwood | h'yilaewatis | 'ily 'ehwatt |
| 105 flesh, meat | co-quiy | kukwaayp |
| 106 wolf | hatch-a-cuil | hechkullk |
| 107 dog | ahut | 'ehatt |
| 108 fox | par how | parhaaw |
| 109 coyote | kattapap | hattepaa |
| 110 squirrel | hak-mahl | 'ehmaall |
| 111 rabbit | con-i-you | kunyaaw |
| 112 hare | he-quool | ? |
| 113 rattlesnake | he-uhey | 'ewii |
| 114 egg | a'k-ma-he-yetch | 'aahmaa eyach |
| 115 goose | chor | ? |
| 116 duck | han do mou | ? |
| 117 pigeon | kiwey | kuwii(K) |
| 118 partridge | ug-ma | 'aahmaa('quail') |
| 119 hawk | hek-pah-wat | 'ihpaa 'ehwatt('red eagle') |
| 120 sea-muscles | ca-huool | ? |
| 121 aulones | hit-cul | ? |
| 122 fish | hot-ch-ya | ? |
| 123 white | nomasup | nemeshap |
| 124 black | neil | nyilly |
| 125 red | euhat | 'ehwatt |
| 126 blue | ha-pussoo | hepeshiw |
| 127 yellow | ha-quack | 'ekwas |
| 128 green | ha-pussoo | (='blue') |
| 129 great,big | matta may | mat 'emaay('high place') |
|  | 130 small, little | matt-illimammat 'ilymaam('sn |
| 131 strong | se-perr | sepir |

| | | |
|---|---|---|
| 32 bread of acorn | senow | 'esnyaaw(='oak') |
| 33 pipe, calumet | moqueen | muukwin |
| 34 tobacco | tabac, or uup | 'up |
| 35 sky, heaven | hamey | 'emaay |
| 36 sun | enyui | 'enyaa |
| 37 moon | hah-lathl | hellyaa |
| 38 fingers | ser-rap-pis | (='5') |
| 39 nails | kwat-la-lwow | sallyehwuw |
| 40 body | ymat | 'emaat |
| 41 belly | etuh | 'etuu |
| 42 leg | ymil | 'emily |
| 43 feet | mme | ('leg'K) |
| 44 toes | mme | (='leg'K) |
| 45 bone | akk | aq |
| 46 vulture | ishpa | 'ehpaa('eagle') |
| 47 whale | ishpan | 'ehpank |
| 48 heart | eya | yay |
| 49 blood | h'what | 'ehwatt |
| 50 town.. | nay-waw-nemunt | ? |
| 51 chief | quipuy | kwaaypaay |
| 52 warrior | qui namiy | kwennemii |
| 53 friend | haca muy | ? |
| 54 house, hut | wa | 'ewaa |
| 55 basket.. | enpull | 'empuull |
| 56 " | happatull | hapetuly |
| 57 arrow | apul | 'epal |
| 58 bow | atim | aatim |
| 59 ax of stone.. | oweil | 'ewily('stone') |
| 60 knife | ahaquow | 'ehkwaa('metal') |
| 61 star | kulluep | Kwellyap |
| 62 day | enya | 'enyaa(='sun') |
| 63 light | tenya | ? |
| 64 night | tenyum | tiinyaam(K) |
| 65 darkness | ahun | hunn |
| 66 morning | mi-e-car | maaykally |
| 67 evening | tini | tenay |
| 68 spring | ahun | (='good') |
| 69 summer | sigh | -hill('roast') |
| 70 autumn | a-pulh | 'iipall('summer') |
| 71 winter | hacachur | hiichur |

| | | |
|---|---|---|
| 132 old | kooruc | kurak('old man') |
| 133 young | lamum | (='child') |
| 134 good | ahun | 'ehan |
| 135 bad | whal-ich | wellich |
| 136 handsome | ahun | (='good') |
| 137 ugly | whal-ich | (='bad') |
| 138 live, life | ahun | (='good') |
| 139 dead,death | mal-hay | melay |
| 140 cold | hechur | hechuur |
| 141 warm, hot | har-rour | weraaw |
| 142 I | ah-hun | (='good') |
| 143 thou | ne-yar | ? |
| 144 he | ah-hun | (='good') |
| 145 we | hin-ya | 'enyaa('I') |
| 146 you | ma-ya mut | menyaamat('you all') |
| 147 they | ma-ya-wup | menyaawap('you pl.') |
| 148 this | ah-hun | (='good') |
| 149 that | ah-hun | (='good') |
| 150 all | ah-hun,maya-wup | (='good,you pl') |
| 151 many,much | ahun-simirey | ? |
| 152 who | ah-hun | (='good') |
| 153 near | sii | ? |
| 154 to-day | nepil-pilya | kupilly peyaa('this day') |
| 155 yesterday | tinney | tenaay |
| 156 tomorrow | may yokal | maaykally('morning') |
| 157 yes | ah-hun | (='good') |
| 158 no | ho-mow | umaaw |
| 159 east | ne-a-che-puckchis | 'enyaa chepakches* |
| 160 west | ne-yu-hup | 'enyaa wehap** |
| 161 north | ka-tuhl | ketuull |
| 162 south | a-waks | kewaak |
| 163 one | hin | 'ehin |
| 164 two | ho wop | hewak |
| 165 three | homuk | hemuk |
| 166 four | se pupp | chepap |
| 167 five | serupp | saarrap |
| 168 six | chip hok | chephuuk('8'K) |
| 169 sweet | neyuel | meyally |
| 170 bitter | ha qunck | 'ehkwaq |
| 171 acid | wil-itch | (='bad') |

| | | |
|---|---|---|
| 72 wind | matha | mathaa(K) |
| 73 lightning | wilhyap | wellyap('burn') |
| 74 thunder | aker | ? |
| 75 rain | akwee | 'ekwiy |
| 76 snow | alap | aalap |
| 77 hail | alap | (='snow') |
| 78 fire | hak-kal-rup | ...rap('hurt') |
| 79 crow | ahap | 'ehaak |
| 80 bear | numul | nemuul(K) |
| 81 sea-otter | pap-pil-ya | ? |
| 82 owl | hetcha-ak | shichaak |
| 83 turkey-buzzaard | hih-pe | 'ihpaa('eagle') |
| 84 horn-owl | kit-ta-quack | ? |
| 85 water | ah-ha | 'ehaa |
| 86 ice | how-wurh | ? |
| 87 earth, land | ahmut | 'emat |
| 88 sea | ha | 'ehaa(=water) |
| 89 river | hachapay | ? |
| 90 lake | posa | ? |
| 91 valley | mitahr | 'emtaar |
| 92 hill | emut-illy-mam | 'emat 'ilymaam |
| 93 mountain | mut-y-mi | mat 'emaay |
| 94 island | ha-wei | hawily('water-rock')? |
| 95 stone, rock | aweel | 'ewily |
| 96 iron | ena-row | ? |
| 97 gold | mattawottis | mat 'ehwatt |
| 98 maize | hayetch | eyach('seed') |
| 99 oak-tree | esnow | 'esnyaaw |
| 100 leaf | hayal-lumum | ? |

| | | |
|---|---|---|
| 172 eat | assowo | 'esuw |
| 173 drink | assee | 'esii |
| 174 run | annow | 'enuw |
| 175 dance | ennema | iimaa |
| 176 go | kalyapai | halyepay('near') |
| 177 sing | kachi you | 'echkeyuw |
| 178 sleep | cha-ma | hemaa |
| 179 speak | kayba | kaayp |
| 180 see | neou | ewuuw |
| 181 love | minaworl | nyiiwar('hungry') |
| 182 kill | yamu tch | aamuuch |
| 183 salt | seil | 'esily |
| 184 tortoise | ka-kup | ? |
| 185 fly | nespiel | ? |
| 186 musketo | muspuil | sempulyk(K) |
| 187 crown of feathers for chief | how-wal | wall(T'feather') |
| 188 wings | cha wal | shaawall(K) |
| 189 oats | en-pay | inepay('wheat'K) |
| 190 mustard | mortarza | (Sp.) |
| 191 acorns | es-neow | 'esnyaaw |
| 192 salmon | e-wey | 'ewii('snake') |
| 193 sit | kanup | kenak('sit!) |
| 194 stand | ka-pa-que | kepehkwii |
| 195 come | ka-u-widis | keyiw('Come!') |
| 196 earthquake | mata-indis | 'emat winnp |
| 197 eclipse | enow-e-nuul | ? |
| 198 boat of tule.. | hekwe | ? |

NOTES

K: attested in Kumeyaay and Tiipay

T: attested in Tiipay only

Sp.: Spanish loan

(='gloss'): same word as 'gloss'

('gloss'): means 'gloss' in modern language

?: does not suggest any known word in modern languages

The notiation ... indicates that I have omitted (to save space) a longer description of the item which was irrelevant to the purposes of this article.

* 'sun emerges'

** 'sun goes in'

# -k and -m in Yuma Narrative Texts[1]

Amy Miller

## 1. Introduction

Switch reference, a morphosyntactic device marking change versus continuity in subject, has received a great deal of attention in the Yuman literature. In most of the modern languages,[2] the "same-subject" marker is -k and the "different-subject" marker is -m, and *-k and *-m have been reconstructed as Proto Yuman switch reference markers by Langdon (1978:95-98) and Winter (1976:170-171) respectively. While certain questions remain to be answered regarding the antiquity of the switch reference markers (see Munro and Gordon 1989:73-77), I will assume these reconstructions to be accurate.

One language for which it is not yet clear whether a switch reference analysis is appropriate is Yuma, a member of the River subgroup. Yuma was first described, in a careful and detailed grammar by A. M. Halpern (1946, 1947), decades before the notion of switch reference was introduced (Jacobsen 1967). Halpern analyzed Yuma -k and -m as "present-past" morphemes[3] and implied that the choice between them depended on verb class.[4] He also recognized a second suffix -m, which he glossed 'present-past subordinating'. Thirty years later, during a period of intense interest in switch reference in Yuman languages, Halpern (1976:21) acknowledged that subordinating -m "usually but not exclusively indicat[es] a change of actor to follow". He was careful to point out that not all instances of -m could be analyzed as the different-subject marker, and he said nothing at all about -k having any kind of same-subject marking function. I infer from Halpern's remarks that he did not believe switch reference marking to be the primary function of -k and -m in Yuma.

Slater (1977) argues that switch reference marking does operate in Yuma, but she recognizes and tries to account for the fact that not all -m's are different-subject markers. A switch reference analysis is also adopted, at least in part, by Langdon (1978).[5]

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[1] I thank participants in the 1992 Hokan-Penutian Workshop for their helpful comments. I gratefully acknowledge financial support from the Abraham M. Halpern Memorial Fund.

[2] Exceptions are Kiliwa, Cocopa, and the Diegueño languages.

[3] The label 'present-past' is not particularly appropriate for these suffixes; Halpern recognized that -k and -m both indicate "action occurring either in the present or past or concurrently with the action of the following verb" -- while the action of the following verb could be either realis or irrealis (1947:157-158). Halpern's examples show that he was also aware that -k can appear on imperatives.

[4] He writes that -m "is used to the exclusion of -k with [certain] themes ..." (Halpern 1947:157-158).

In this paper I examine the use of -k and -m in Yuma narrative texts. I begin with the assumption that a switch reference system operates, at least to some extent, in this language, and I discuss various complications that tend to disguise its operation. Next I discuss various unexpected uses of -k and -m that occur in texts. Finally, using frequency counts, I evaluate the reliability of -k and -m as switch reference markers in Yuma texts.

The texts used as my database were collected by A.M. Halpern from two speakers, both elderly men, in 1978.[6] They represent about three hours of narrative, approximately two hundred pages of analyzed text.

I would like to emphasize that this paper is a preliminary study of the topic. Mistakes in analysis and interpretation are unavoidable at present, since Halpern's translations are often not specific about the referents of pronouns, and because my present understanding of Yuma discourse is incomplete at best. In particular, Yuma -k and -m cannot be fully understood until studies have been made of the auxiliary system, conjunctions, and the role of zero in clause combining.

## 2. Complications

The languages of the River Yuman subgroup -- Mojave, Maricopa, and Yuma -- are notorious for having complications which make the operation of their switch reference systems hard to see. Much has been written on this topic; see Slater (1977) for Yuma, Munro (1976, 1981a) for Mojave, and Gordon (1983, 1986) for Maricopa.

2.1. One complication found throughout the River subgroup is that -k's and -m's are used not just as switch reference markers but also as suffixes which can end sentences. In Mojave and Maricopa, sentence-final -k and -m are treated as "tense/aspect suffixes" (Munro 1981a:124) and markers of "simple realis indicative" (Gordon 1986:102) respectively. Likewise in Yuma, the "present-past" morphemes -k and -m are found at the ends of sentences, as may be seen in Halpern's (1947:157-158) examples, some of which are reproduced in (1).[7] Relevant morphemes are underlined.

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[5] Langdon analyzes -k as a same-subject marker (1978:95-96,107-108) but does not discuss Yuma -m.

[6] The speakers are Tom Kelly and Ignatius Cachora. The narratives are descriptions of an important mourning ceremony, the Kar?úk. I have provided interlinear glosses, line breaks at intonation breaks, and a slightly modified translation.

[7] The following abbreviations are used in interlinear glosses: assrt 'assertive', col 'collective plural', def 'definite', dv 'distributive plural', DS 'different subject', imp 'imperative', irr 'irrealis', loc 'locative', md 'middle

1. (From Halpern 1947:157)

a. atáp-k [throw-K] 'he throws, threw it'

b. k-awí-nti-k [imp-do-again-K] 'do it again'

c. saví apák-xay-k amí:-m
[there.far arrive-no.sooner.than-SS weep-M]
'No sooner did he arrive than he wept.'

The fact that sentence-final -k and -m are identical with the switch reference markers presents a problem for the analysis of texts, where dozens of clauses with -k and -m -marked verbs can be strung together. As there are few reliable clues for identifying the ends of sentences, it is often unclear whether a -k or -m is a sentence-final suffix or a switch reference marker. While I am not convinced that the sentence is an appropriate unit of analysis in Yuma discourse,[4] in this paper I shall take the conservative course of recognizing all sentence boundaries indicated by Halpern's punctuation. -k's and -m's at these boundaries shall be treated as sentence-final morphemes rather than switch reference markers. The existence of alternative analyses of -k and -m should be kept in mind, though, as it will add fragility to my eventual conclusions.

2.2. Another complication to the switch reference system is the fact that Yuma, like other River languages, has a class of what Munro (1981a) and Gordon (1983, 1986) call "-m verbs". -m verbs take -m, and not -k, as their end-of-sentence suffix (an example is 'weep' in (1.c)), and furthermore, quoting Gordon (1983:86), -m verbs "do not participate in the switch reference system". Instead, they always (except in certain special contexts)[5] take -m, regardless of switch reference relations

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distance', pl 'plural', refl 'reflexive', sj 'subject', SS 'same subject'. The -k's and -m's which end "sentences" are glossed -K and -M respectively, as are other -k's and -m's of uncertain function. The symbol d represents /ð /, ṣ represents the voiceless postalveolar fricative transcribed by Halpern as /š/, and ? is glottal stop.

[4] Yuma has several morphemes which unambiguously mark the ends of often quite large units of discourse more comparable to the paragraph than to the sentence, including the suffix -$t^{y}a$, which "indicates completed action or that which is obviously, naturally, or universally true" (Halpern 1947c:156), and the suffix -a/-a?a which indicates "end of sentence" (Halpern 1947c: 160-161), or, perhaps better, 'end of paragraph'.

[5] As complements of a?í 'say' or in construction with auxiliary a?í 'say', -m verbs take -k. See Munro (1981b) and Langdon (1986) for discussion.

with the reference clause. Examples are given in (2); from here on I shall segment the -m of -m verbs with an equals sign rather than a hyphen.

2.a. nʸá:nʸi:yá:-k kamí:=m avá:m
go.there-SS bring=m arrive.there
'they take them there [lit., they go there and bring them and arrive there] ...' (TK 1.15)

b. aṣtú:=m nʸi:v?áw-k
gather=m stand.there-SS
'he gathers them and stands there ...' (TK 1.15)

Halpern provides an exhaustive list of 22 -m verbs in his grammar; this list is reproduced in (3). (Halpern describes them as verbs which take -m, rather than -k, as their present-past suffix, but it is also very clear that they obligatorily take -m rather than participating the in switch reference system.)[10]

3. -m verbs (from Halpern 1947:158)

acé 'to lay down long object'
acpá 'to emerge'
adú 'to do, to be'
akʸé 'to shoot'
alʸapá 'to be mistaken'
amá 'to eat'
amí 'to weep'
apá 'to lie down'
así 'to drink'
aṣma 'to sleep'
aṣtú 'to gather'
at?í 'to bear abundantly'
awí 'to do'
a?í 'to say'
a:lʸ?í 'to think, prefer, believe'
cakaná 'to decide'
camí 'to lay down long object'
kamí 'to bring'
macac?í 'to weep (pl)'
maspá 'to die out (fire)'
tawé 'to grind on metate'
u:cé 'to lead war party'

Most of the stems listed in (3) are attested in Halpern's 1978 texts, where they still function as -m verbs. Perhaps more interesting is the fact that the class of -m verbs appears not to have grown between the 1930's when Halpern did the field work for his grammar and the late 1970's when he collected the texts used in my database. In Mojave and Maricopa, on the other hand, there are huge inventories of -m verbs, and Munro (1981a) argues that the Mojave -m verb class is still growing.

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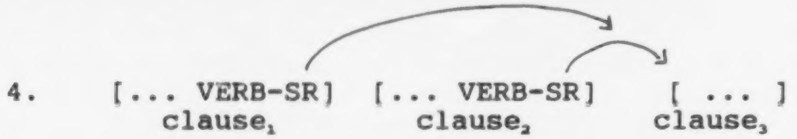
[10] A few details concerning -m verbs are needed in order to understand the examples in this paper: First, the presence of an intervening suffix (such as -t 'assertive', -nti 'again', or -apat/-nʸpat 'in turn, also') cancels the obligation of an -m verb to take -m and thus enables it to participate in the switch reference system; so while awí 'do' is an -m verb, one nonetheless finds awí-nti-k (do-again-SS) in same-subject contexts. Second, a number of -m verbs are subject to vowel length and vowel quality ablaut, depending on the suffix that immediately follows. Thus we have awí=m and awí:=m (do=m) but awé-t (do-assrt). Third, stems derived by prefixation from the those listed in (3) act as -m verbs; thus, avawí 'do somehow' (from awí 'do') is an -m verb. Stems derived by suffixation, however, are not -m verbs; awíc 'do (collective)' and ka:dóm 'be or do somehow' do participate in the switch reference system.

2.3. A third complication obscuring the operation of the switch reference system is the fact that switch reference marking does not always proceed in a linear fashion. Stated simply, some clauses seem to get skipped over, or treated as transparent, by switch reference marking. This is diagrammed in (4): in a series of three or more clauses, two of the clauses both take the third clause as their reference clause.



4. [... VERB-SR] [... VERB-SR] [ ... ]
clause$_1$ clause$_2$ clause$_3$

This phenomenon has been discussed by Gordon (1983) for Maricopa and Miller (1990:155-156) for Jamul Diegueño. In Yuma, the clause that is "transparent" to switch reference marking typically provides some sort of background information. There are examples in (5); in each one, the "transparent" background clause begins on the second line. It should be noted that not all background clauses occur in this construction.

5.a. n$^y$i:namá:n-k van$^y$a:nadí:-nti-k katán-k
start.there.col-SS when.come.col-again-SS arrive.col-SS
'[the scouts] start there, and when they arrive back again,

?i:sáv taṣáṭ-m ayú:-k
arrowweed set.up.standing-DS see-SS
they see arrowweeds set up there (lit., [others] have set up arrowweeds, and [the scouts] see them) ...' (IC 1.8)

b. a:cví:r-k
finish.pl-SS
'they finish,

n$^y$á:n$^y$-c a:párv-m
that-sj end-DS
that having ended,

a:cví:r-m
finish.pl-M
they finish.' (IC 1.11)

Another circumstance in which switch reference proceeds in a non-linear fashion is in what might be called a "repetition" construction, where the same clause is repeated several times -- perhaps with elaboration -- and in each repeated clause switch reference is marked with respect to the same reference clause. In (6), for instance, the clause in the third line serves as reference clause to those in the first and second lines.

|  |  |  |
|---|---|---|
| 6. | amák | nʸa:ví:r-m |
|  | behind | when.finish-DS |

and afterwards, when they finish,

|  |  |  |
|---|---|---|
| nʸa:ví:r-m | matamák | nʸá:nʸ-i |
| when.finish-DS | behind | that-loc |

when they finish, at that [time] after,

|  |  |  |  |  |
|---|---|---|---|---|
| nʸa:yú: | ?axáṭ | alʸkʷaṭtu:?ú:r-c | katán-k | nʸu:v?ó:-k |
| thing | horse | def.ride.on-sj | arrive.col-SS | stand.there.col-SS |

[people] riding horses arrive and stand there ...' (IC 1.11)

These three complications -- the fact that -k's and -m's can be analyzed as end-of-sentence morphemes as well as switch reference markers, the existence of a class of -m verbs, and the fact that switch reference sometimes operates in a non-linear fashion -- must be taken into account when analyzing -k and -m, as they obscure the normal operation of the switch reference system. I shall now examine the use of -k and -m in Halpern's texts and discuss the extent to which they can be relied on as markers of switch reference.

### 3. Normal and unexpected uses of -k and -m

A high percentage of the -k's and -m's found in texts can be analyzed as switch reference markers. (Exact counts from my database are given in section 4.) For example, in (7.a), -k appears on a verb which has the same subject as the verb which follows, and in (7.b) -m appears at a change in subject.

|  |  |  |  |
|---|---|---|---|
| 7.a. | cacpạ:c-k | mat?ár | tatṣá:ṭ-k |
|  | bring.them.out-SS | outdoors | set.them.up-K |

'they bring them out and set them up outdoors ...' (TK.3)

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| b. | u:tara?úy-k | vi:dáw-m | ?anʸá: | ta?ór | kayá:m |
|  | put.in.order-SS | be.here.pl-DS | day | noon | go.straight.towards |

'they go about putting [things] in order, and it's getting towards noon ...' (TK.4)

In a smaller number of cases, -k unexpectedly appears at a change in subject and -m is found where there is continuity of subject. (Again, exact counts are given in section 4.) In this section I discuss unexpected occurrences of -k and -m and try, with little success, to find significant patterns which might help to explain deviations from normal switch reference marking.

Among unexpected uses of -k, two patterns can be identified. The first is exemplified in (8), where the first verb is marked with -k, yet its subject is different from that of the reference clause. Notice, however, that the change in subject is coded lexically by an overt subject noun phrase in the reference clause.[11] Since this noun phrase clarifies the referent of the subject of its clause, the unexpected use of -k̲ poses no practical problems for the listener.

8. nʸa:ví:r-k̲
when.finish-K
'when they finish,

pa?i:pá: kʷ-u:xáy kʷa-şu:páw avá-c vi:vá-k ayú:-k
person def-know.how def-know this.md-sj be.here-SS see-SS
this person who knows and is able is here and sees it ...'
(IC 1.5)

Sometimes the clue to a change in subject is much more subtle. In (9), the two verbs in the first line have an inanimate subject, u:kup-nʸ-c 'the holes'. A change in subject occurs between the first and third lines, despite the fact that the final verb of the first line is suffixed with -k̲. The verb in the third line, however, requires an animate subject. The change in the subject's animacy status between the first and third lines forces the listener to infer that a change in subject has taken place.

9. u:kúp-nʸ-c vadá-nʸ lʸaví:-k va:?é-t-k̲
hole-def-sj this.nr-def be.like-SS say.thus-assrt-K
'the holes are about like this,

?a?í:-nʸ
wood-def
and the poles,

?a?í: acá:=m
wood put.down.small.obj
they put poles down ...' (TK 1.5)

Very often, however, unexpected -k̲'s occur where there is no linguistic clue whatsoever to a change in subject. In such cases, cultural knowledge and/or knowledge of the utterance context can help to clarify subject reference. In (10), a change in subject occurs between the first and second lines. The final verb of the first line is marked with -k̲, however, and only a listener who knows the ceremonial functions of the various participants in the ceremony being described can infer that a change in subject takes place here.

10. u:kavék takxáv-k̲
take.back take.inside-K
they take them back inside,

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[11] Munro (1976:43) reports that -k̲ is sometimes followed by a lexically realized different subject in certain kinds of elicited sentences in Mojave.

nʸa:nʸmá:m  a:ṣvá:r-k
finally  sing-SS
and finally they [others] sing ...'  (TK 1.14)

Thus, while some unexpected -k̲'s occur in contexts where linguistic clues help the listener keep track of subject reference, it is at least as common to find unexpected -k̲'s in contexts where no such clue is found.

One other pattern may be observed among unexpected -k̲'s. Parenthetical expressions tend to be set off from the main flow of the narrative by -k̲'s at either end, regardless of whether they involve continuity or change of subject. In (11), for instance, the entire second line is a parenthetical, and it is linked to the narrative by a -k̲ at the end of the first line and another -k̲ at the end of the second line, even though a change in subject occurs at both places. Notice that switch reference behaves normally within the parenthetical.

11. ?aví:-lʸ  u:v?ó:-k̲
hills-in  stand.col-K
'they grow (lit., they stand) in the hills,

?-a?ép-m  m-a?am-k̲
1-mention-DS  2-be.able.to.hear-K
as I mentioned and you heard,

nʸa:yú:  ?aví:-k  su:v?ó:-m
things  hills-at  stand.there.far.col-DS
they grow (lit., they stand) far off in the hills ...'  (TK 1.15)

This is a very minor pattern, accounting for only a small percentage of unexpected -k̲'s.

The suffix -m̲ is sometimes found unexpectedly in same-subject contexts. Unexpected -m̲'s have long been noticed in the River languages. For Mojave, Crawford (1976:40) identifies an -m̲ (distinct from the different-subject suffix) which she glosses 'durative'. Slater (1977:27-28), discussing elicited sentences in Yuma, finds unexpected -m̲'s in same-subject contexts when "the action of the reference-marked verb is asserted to be inadvertent" and when "the -m̲-marked verb is actually a stative resulting from the action indicated by the verb stem". Halpern (1976:21) observes that unexpected -m̲'s "describe discontinuous actions by the same actor". The latter two ideas have proven helpful in understanding some unexpected -m̲'s in my database; I have found several cases which can be interpreted as describing discontinuous actions by the same actor and a few in which the verb of the marking clause can be taken to denote a state. Examples are given in (12) and (13) respectively. In each case, -m̲ appears where there is continuity of subject. Notice also that the examples in (12) contain no linguistic clues which would steer the listener towards a same-subject interpretation.

12.a. a:ví:r-m̲
finish-M
'he finishes,

nʸi:ca:mán-nti-k      nʸa:ṣvá:r-nti-k ...
start.there-again-SS  when.sing-again-SS
and when he starts to sing again ...' (IC 1.27)

b. nʸa:ví:r-m̲
when.finish-M
'when they finish,

katán-k         kacu:náv
arrive.col-SS   tell.of.it.pl
they arrive and report ...' (IC 1.4)

13. vu:v?ó:-m̲          ?avá-nʸ     u:taṣáw-k
stand.here.col-M  house-def  try.out-SS
'standing here, they try out the house ...' (TK 1.9)

The majority of unexpected -m̲ cases, however, fit neither Halpern's nor Slater's characterizations. In fact, the only observation I have been able to make that applies to a significant number of cases is this: unexpected -m̲'s tend to appear when a clause (or clause chain) is linked with another clause or chain that modifies it or elaborates on its content. Examples are given in (14).[12]

14.a. a:ṣvá:r-k  vu:nó:-m̲
sing-SS    be.here.pl-m̲
'they go on singing,

maskʷé-nʸənʸ  kaná:v-k     a:ṣvá:r ...
image-that   describe-SS  sing
singing about the images ...' (TK 1.9)

b. avá-k          adáw-m̲
this.md-from  take-M
'he takes it from here,

u:mpínʸ-k     adáw-k
rip.away-SS  take-SS
he rips it off and takes it ...' (TK 1.16)

c. maṭ-m-tavér-m̲   m-a:cu:mpáp-k
refl-2-chase-M  2-do.four.times-SS
'You [will] chase each other four times ...' (IC 1.11)

Perhaps the lexical repetition involved in (14.a,b) provides a subtle clue to continuity of subject.

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[12] (14.a,b) are instances of the "repetition" construction described in 2.3. Not all instances of this construction contain deviant uses of -k̲ and -m̲, however (cf. 6).

A few patterns can be identified among unexpected uses of -**k** and -**m**. Some are minor in scope, while a few are broader but still far from systematic. Perhaps further work will yield richer results. At present, however, it is not possible to analyze unexpected instances of -**k** and -**m** as special yet systematic uses of these suffixes, and they must therefore be treated as deviations from normal switch reference marking. In the following section I present actual counts of expected and deviant uses of -**k** and -**m** in Yuma texts and discuss their implications.

### 4. -k and -m as switch reference markers

In my database, I counted 1134 instances of -**k** which clearly mean 'same-subject' and 140 instances of -**m** which clearly mean 'different-subject'.[13] I also found 111 unexpected -**k**'s occurring in different-subject contexts and 46 -**m**'s in same-suject contexts. Taken together, -**k** and -**m** behave as expected 89% of the time, and they behave counter to expectations 11% of the time. These counts are summarized in (15).

15.a. Total -**k**: 1245 | Total -**m**: 186
-**k** at SS: 1134 = 91% | -**m** at DS: 140 = 75%
-**k** at DS: 111 = 9% | -**m** at SS: 46 = 25%

b. Total -**k** and -**m**: 1431
-**k** and -**m** behaving as expected: 1274 = 89%
-**k** and -**m** behaving unexpectedly: 157 = 11%

89% seems to be a reasonably high percentage and could easily lead to a conclusion that -**k** and -**m** are fairly reliable signals of change vs. continuity of subject in Yuma.

I think, however, that 89% is a misleading figure, and I find it worthwhile to examine the situation more carefully. Two facts should be noted: First, there are approximately seven times as many -**k**'s as -**m**'s among the potential switch reference markers in my database. (This is no doubt due to the fact that continuity of subject is the norm in texts.) Second, -**k** occurs in same-subject contexts with much greater reliability than does -**m** in different-subject contexts. The predominance of -**k**'s over -**m**'s skews the percentages in (15.b), and these percentages in turn obscure the fact that -**m** is much less reliable than -**k**. When the counts for -**m** are treated separately from those for -**k**, as in (15.a), and when certain other considerations are taken into account, a conclusion emerges which is quite different from the obvious one rejected above.

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[13] I have excluded from the counts in (15) the -**m**'s which follow -**m** verbs, since these -**m**'s are obligatory. I have excluded from all counts the following -**k**'s and -**m**'s: (i) those occuring where Halpern's punctuation indicates the end of a sentence; (ii) those which end or immediately precede passages of quoted speech; and (iii) those for which it remains unclear whether there is change or continuity of subject.

Consider first the class of -m verbs (section 2.2). This class includes some very high-frequency verbs ('be', 'do', and 'say' are especially common). In my database, I found 326 instances of -m verbs. Compare the number of -m's which actually mark same subject: there are 140. -m's which appear obligatorily on -m verbs thus outnumber -m's which mark change of subject by a ratio of more than two to one. These counts are given in (16).

| | | |
|---|---|---|
| 16. | Number of -m's on non-m verbs: | 186 |
| | including -m's at DS: | 140 |
| | and -m's at SS: | 46 |
| | Number of -m's on -m verbs: | 326 |

It is clear, then, that the most common function of -m is to mark verbs which belong to a particular class. The use of -m as a different-subject marker is much less common.

Next, consider how changes in subject are actually marked. In my database, 140 changes in subject are marked as expected with -m. However, I also found 111 changes unexpectedly marked with -k and 42 changes in subject that could have been marked with -k or -m but which were zero-marked. In other words, changes in subject are marked with -k almost as frequently as they are marked with -m, and the number of changes in subject marked with -k or zero actually exceeds the number marked with -m. These counts are given in (17).

| | | |
|---|---|---|
| 17. | Changes in subject marked by -k: | 111 |
| | Changes in subject zero-marked: | 42 |
| | Total marked by -k or zero: | 153 |
| | Changes in subject marked by -m: | 140 |

It is clear, then, that the appearance of -m is not a reliable signal of a change in subject; rather, a change in subject is more likely to be marked with -k or zero than with -m. This raises the question of whether it is appropriate to analyze -m as a different-subject marker in synchronic Yuma.

A diachronic perspective sheds light on the synchronic situation. Recall that *-k and *-m have been reconstructed as Proto Yuman switch reference markers. The figures in (16) and (17) suggest the hypothesis that Yuma -m is in the process of being reanalyzed as a marker of a particular verb class: the class of -m verbs. (The reanalysis is not yet complete, as is evident from the fact that -m still appears on verbs outside of the -m verb class.) Perhaps -k too is being reanalyzed as a marker of a verb class: a very large class which would include all non-m verbs. The preponderance of -k's in narrative texts would facilitate such a reanalysis.

This hypothesis would explain why -m cannot be relied upon statistically as a different-subject marker and why -k is found not just in same-subject contexts but also at changes in subject. Furthermore (assuming of course that the sentence is a valid unit of analysis in Yuma discourse), such a hypothesis would neatly subsume sentence-final -k's and -m's.

There is one problem which this hypothesis would leave unresolved: some -m's occur on verbs which do not belong to the -m verb class. Perhaps the reason for this is that a second -m, homophonous with the verb class marker and having a function not yet understood, is emerging. In any case, this problem remains for further research.

What can be concluded with certainty is that Halpern's evident reluctance to adopt the switch reference analysis of -k and -m was well justified. His original analysis (1947) is better suited to the facts of the language. If anything, that analysis was ahead of its time; if the reanalysis proposed above is in fact underway, then -k and -m are in the process of becoming the verb-class dependent, "present-past" suffixes Halpern analyzed them as being. Halpern's second suffix -m, the subordinating suffix, is what remains of the obsolescent switch reference system.

Finally, the reader is reminded that this paper is only a preliminary study of the topic. Greater knowledge of Yuma discourse, and, in particular, studies focussing on the auxiliary system, conjunctions, and the role of zero in clause combining, would shed additional light on Yuma -k and -m.

## 5. Summary

In this paper, I have examined normal and deviant uses of -k and -m and investigated the extent to which these suffixes can be relied upon as switch reference markers. The results have led me to question the validity of a switch reference analysis for synchronic Yuma and to propose that -k and -m are being reanalyzed as verb class markers. Additional text-based studies of Yuma and other Yuman languages are needed, not just to support or refute this proposal but because an understanding of Yuman discourse can add much to our understanding of Yuman syntax and of Yuman languages in general.

## References

Crawford, Judith. 1976. Seven Mojave texts. In Langdon, ed. pp. 31-42.

Gordon, Lynn. 1983. Switch-reference, clause order, and interclausal relationships in Maricopa. Switch Reference and Universal Grammar, ed. John Haiman and Pamela Munro. Amsterdam: John Benjamins. pp. 83-104.

Gordon, Lynn. 1986. Maricopa Morphology and Syntax. University of California Publications in Linguistics 108.

Halpern, A. M. 1946. Yuma I, II, III. IJAL 12.2:25-33, 147-151, 204-212.

Halpern, A. M. 1947. Yuma IV, V, VI. IJAL 13.1:18-30, 92-107, 147-166.

Halpern, A. M. 1976. Kukumat became sick. In Langdon, ed. pp. 5-25.

Jacobsen, William H., Jr. 1967. Switch-reference in Hokan-Coahuiltecan. Studies in Southwestern Ethnolinguistics, ed. Dell H. Hymes. The Hague: Mouton. pp. 238-263.

Langdon, Margaret, ed. 1976. Yuman Texts. IJAL Native American Texts Series 1.3. University of Chicago Press.

Langdon, Margaret. 1978. Auxiliary verb constructions in Yuman. Journal of California Anthropology Papers in Linguistics. pp. 93-130.

Langdon, Margaret. 1986. Complements of 'say' in Yuman. Paper read at the 1986 meeting of the American Anthropological Association, Philadelphia.

Miller, Amy. 1990. A Grammar of Jamul Diegueño. University of California, San Diego, dissertation.

Munro, Pamela. 1976. Mojave Syntax. New York: Garland Publishing.

Munro, Pamela. 1981a. Mojave -k and -m: it ain't necessarily so. In Redden, ed. pp. 124-129.

Munro, Pamela. 1981b. Two notes on Yuman 'say'. In Redden, ed. pp. 70-77.

Munro, Pamela and Lynn Gordon. 1989. Inflectional ablaut in the River languages. Papers from the 1989 Hokan-Penutian Languages Workshop. University of Oregon Papers in Linguistics 2:69-86.

Redden, James E., ed. 1981. Proceedings of the 1980 Hokan Languages Workshop. Carbondale: Southern Illinois University Occasional Papers on Linguistics 9.

Slater, Carol E. 1977. The semantics of switch referernce in Kwtsaan. Berkeley Linguistics Society Proceedings 3:24-36.

Winter, Werner. 1976. Switch-reference in Yuman languages. Hokan Studies, ed. Margaret Langdon and Shirley Silver. The Hague: Mouton. pp. 165-174.

# * Statives in Walapai

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Walapai has a number of morphemes that refer to state or change of state. There are several "morphemes" which may be just the same morpheme despite the large differences of meaning in translation. These morphemes are /-v/, /-ò/, and /-m/. This paper will investigate the various uses of these morphemes.

1. qóθ póq-we # I spilled the/some coffee.

coffee spill-DO

2. qóθ póq-ò-k-yu # Some/The coffee has been spilled.

coffee spill-STA-SS-BE

3. qóθ póq-k-yu # The coffee is spilling/slopping out.

coffee spill-SS-BE

In No. 1, /qóθ/, *coffee*, is marked as accusative since it has a zero suffix. First-person subjects usually have neither a subject prefix nor a subject suffix on the verb. The /-we/ suffix, *DO*, marks the verb as transitive. In No. 2, the verb has an/-ò/ suffix which is referred to as stative or applicative. The meaning here is: "Speaker is commenting on an observed state, but speaker does not know how the state came about." Such intransitive or middle verbs are descriptives or pseudo-passives much like English, "The door is closed(.)", which is a descriptive and not a passive. It describes a state or condition. In No. 3, /qóθ/ is the subject of the verb, though it is marked as accusative since it has a zero suffix. Intransitives are marked by the /-yu/, *BE*, suffix; and the speaker is noting what is happening to the coffee. This could also be past, but the speaker would still be commenting on what was observed as happening. /-ò/ here means "state" or "change of state".

4. ɲá-č ɲà sál či-kyát-ày-wi # I'm going to cut/split my finger.

1-NOM 1 hand CAUS-cut-FUT-DO

5. ɲá-č ɲà či-kyát-ò-wi # I have cut my hand.

6. ɲà sál pày vi-kyát-v-ò-k-yu-ɲ # I got my fingers all cut off.

1 hand all INTNS-cut-REFL-APPLIC-SS-BE-PERF

In No. 4, speaker is making a conscious action of cutting open the hand for some purpose such as removing a thorn. In No. 5, speaker is remarking on the fact that his/her hand is cut, and speaker probably doesn't know how the hand was cut. No. 5 could just as well be translated: *My hand is/has been/has gotten cut.* In No. 6, no doubt the speaker knows how the fingers were cut off, probably in an accident. The /-v/ is a reflexive, but reflexive in Walapai often works like reflexive in Romance languages and means a state or description. (Cf. French: *La rue s'arrête ici.*) The /-ò/ means the resulting state or condition. Since the verb has the /-k/ suffix and not a zero suffix, a third-person is indicated. Thus, No. 6 is also a stative which means something like: *My fingers all got cut off.* The /-v/ seems to be a reflexive referring to the speaker, and the /-ò/ seems to be an applicative referring to the fingers. Thus, the literal meaning would be something like: *My fingers all got themselves cut off on me.* There doesn't seem to be any mark of the unethical dative in Walapai,like the "on" of English, **except** the /-ò/ which may also mark a dative or a benefactive.

7. béθ miyál-a a-kaká-wi-ɲ #    I bought some bread from Beth.

Beth bread-DEF 1-buy-DO-PERF

8. béθ miyál-a a-kaká-v-ò-wi-ɲ #    I bought some bread for Beth.

Beth bread-DEF 1-buy-REFL-APPL-DO-PERF

In No. 7, the translation could just as well be: *I bought Beth's bread(.)* because the grammatical structure for the possessive would be the same. (For a long time, I thought that the root for *buy* was /kakáv/; but as these two sentences show, the root is /kaká/,and the /-v/ is the reflexive.) The /-ò/ in No. 8 is an applicative indicating the benefactor of the buying. Why is there a reflexive /-v/ in No. 8? Probably because the speaker is going to eat some of the bread too.

9. qáu-k-yu #    It broke.

break-SS-BE

10. qáu-v-ak-yu #    It is broken.

break-REFL-SS-BE

11. qáu-v-ò-k-yu #    It has been/gotten broken.

break-REFL-STA-SS-BE

No. 9 is an intransitive marked by BE. No. 10. is **marked with** the reflexive /-v/ and indicates a state, similar to Romance languages. No. 11 indicates a change of state, and the applicative /-ò/ seems to be another unethical dative, i.e. *It broke on me.* As in No. 6, in No. 11 the speaker was no doubt doing something to the item and it broke unexpectedly. But, it could mean that the speaker found the item already broken.

19. ahá-č θé-k-yu #    The cottonwood tree has leaves on it.

cottonwood-NOM leaf-SS-BE

20. ahá-č θé-ò-k-yu #    The cottonwood tree has leafed out.

In No. 20, /θé/ is purely descriptive indicating that the cottonwood tree has leaves on it. But, the /-ò/ in No. 20 indicates that the tree has leafed out recently. Thus, here /-ò/ indicates a change of state, or that the leafing-out has only taken place very recently.

21. kwê-ɲà-hwál-ò ɲà-wí-č hán-k-yu #    The garden that belongs to me is good.

thing-1-dig/cultivate-PLACE 1-have-NOM be=good-SS-BE

22. kwê-ɲà-hwál-ò ɲà-wí-č hán-ò-k-yu #    The garden that belongs to me is still good.

The /-ò/ that means *place where action is performed* may be the same as the /-ò/ indicating state or change of state, if it is regarded as meaning *place where state or condition obtains.* It would still be a locative noun-formative suffix, but it is probably the same suffix in both cases. No. 21 is a statement that the garden spot which the speaker has is a good one. No. 22. means that the garden spot is still a good one even though it has been used for many years. Thus, here /-ò/ means not a change of state, but a continuing state.

| | |
|---|---|
| 23. ɲivâ-m θàvlúi-k-yu # | There are holes in it. |

that-ABL have=holes-SS-BE

| | |
|---|---|
| 24. ɲivá-m θàvlúi-ò-k-yu # | There are very/too many holes in it. |

No. 23 means that there are some holes in the item, and No. 24 means that there is an excessive number of holes in the item. Both are stative in meaning, as one would expect with the /-yu/ suffix. Yet,neither does it seem that the meaning is a change of state, but in No. 24 the meaning is a strong or intense state.

| | |
|---|---|
| 25. niqó-và-č kwán-k-we # | A bear killed him. |

bear-this-NOM kill-SS-DO

| | |
|---|---|
| 26. niqó-và-č kwán-ò-k-wi-ɲ # | A bear killed him. |

No. 25 describes a visible situation. One is explaining what killed the corpse that one is observing. No. 26 refers to almost any time in the past, and one is commenting on how someone died. Of course, there would be no visible corpse in No. 26. In both cases, the third-person object is zero, which contrasts with marked first- and second-person objects. Thus, it is hard to see how the /-ò/ can mean a change of state. Here, if it means a change of state, it has to refer to a change of state that took place in the past. It seems to be an explanatory stative, something like: *He got killed by a bear.* This would agree with Nos. 2, 5, 11, and 20, meaning: *Here is what must have happened.* Thus, it seems to be a descriptive based on the speakers conclusions drawn from whatever information the speaker has access to.

| | |
|---|---|
| 27. wîhàčanpàč-a-l čúr-k-yu # | Flagstaff has bad winters. |

Snow=Peak-DEF-ILL winter-SS-BE

| | |
|---|---|
| 28. wîhàčanpáč-a-l čúr-ò-k-yu # | It is (already) winter in Flagstaff. |

No. 27 is a descriptive or characterizer of the very bad winters that they have in Flagstaff. The implication is that the winters in Flagstaff are much worse than they are on the Hualapai Reservation, which is of course true. No. 28 indicates that winter has already set in in Flagstaff (which is 2500 feet higher than the Hualapai Reservation), but winter has yet set in on the reservation. Here, it would seem that the /-ò/ means a change of state.

| | |
|---|---|
| 29. čikmí-hà-l hâ-ki-yó-wî-č θapá-ò-k-yu # | The water in the ditch has frozen. |

ditch-that-ILL water-AGEN-be=located-that-NOM. freeze-STA-SS-BE

| | |
|---|---|
| 30. kwè-ɲá-ɲíɲ-ò-č vá-k-yu # | My husband is coming. |

thing-l-hold=onto-STA-NOM come-SS-BE

No. 29 would seem to be a change of state, but it could be just a descriptive describing the state of the water. /kwèɲàɲíɲò/ is a term of endearment for *husband*, literally *the thing I hold onto*. This no doubt implies a long-term relationship and would indicate a continuing state.

31. ɲà kamwír-ò
my pants that I was wearing awhile ago
the pants I used to have

1 pants-STA

32. ɲà mahɲó-wò
my shoes I just took off
the shoes I used to have

1 pants-STA

33. ɲà ɲà-hmí-wò
my husband who is away
my ex-husband

1 1-male-STA

34. kwá ɲà-wí-wò
my knife lying over there
the knife that I lost

metal 1-have/own-STA

Here /-ò/ seems to mean *separated from speaker in time and/or space*, which could be either a long-term or a short-term state. This would mean a change of state, without implying temporary or permanent.

35. òúlì ta-máč-we #
I turned the light off.

spark/flash CAUS-extinguish-DO

36. òúlì-ɲ-č máč-ò-k-yu #
The electricity has been off for awhile.

spark-that-NOM extinguish-STA-SS-BE

No. 35 is just a sentences with a transitive verb, as indiacted by /-we/. No. 36 shows a continuing state or condition. It also indicates a change of state, but not a present change of state. Perhaps a past change of state that still continues should be regarded just as a continuing state.

37. í-č wá-k s-pév-ò-k-yu #
The stick is leaning against the house.

wood-NOM house-INS CAUS-lean-STA-SS-Be

38. ɲá-č wá-k ta-pév-yu #
I'm leaning the stick against the house.

The /s-/ causative in No. 37 has various meanings. Here, it seems to mean *put along side/parallel to*. The stative /-ò/ just expresses a state, and the speaker has no knowledge (probably) of how the stick got there. No. 38 has the /ta-/ causative, which means that an agent made/caused the thing to happen. Thus, the /-ò/ in No. 37 indicates a continuing state/condition of unknown cause and length.

39. qùmtò či-kyát-ò-we #
I cut (into) the watermelon.

melon CAUS-cut-STA-DO

40. ólò-v ta-kyál-v-ò-y-we #
I'm going to saddle up the horse again.

horse-this CAUS-saddle-REFL-STA-again-DO

41. ɲá-č pá-h sitóh-ò-we #     I poked (at) him.

1-NOM 3-that poke/punch-STA-DO

42. àtmopíl-a-č ɲi-yám-ak páy θa-v-hól-hól-ò-k-wi-ɲ-u #     The car raised a lot of dust as it went along.

auto-DEF-NOM SUB-go-SS all CAUS-INTNS-dust-dust-STA-SS-PERF-BE

43. yá qéč-ò-wi #     I'm making it small.

this small-STA-DO

44. ɲà-wá-wò čiál-k ɲìmsáv-ò-wi-ɲ #     I painted my house white.

1-house-PLACE smear-SS white-STA-DO-PERF

45. mètík ɲà-hwál-ò-č hán-či-pák-k-yu #     The beans I planted turned out well.

bean(s) 1-dig-STA-NOM be=good-CAUS-climb-SS-BE

In Nos. 39 to 45, the /-ò/ is usually considered applicative, a suffix indicating that there is an object, maybe a zero object, or the "equivalent" of an English preposition. No. 39 implies that one cut a piece or section off the watermelon. In No. 40 the /-ò/ means that the saddle goes *on(to)* the horse. In No. 41 the /-ò/ implies *at/in(to)*. In No. 42 the /-ò/ bedusted *up into* the air. In numbers 43 and 44 the verbs are "adjectivelike", and the quality of the noun/adjective is imputed to the verb object. In No. 44 /wá/, *house, live,* illustrates the difficultyin separating nouns and verbs in Walapai. /ɲàwáwò/, *my-live-place* is obviously a noun and indicates *the place where the condition/state of living takes place.* Though /-ò/ here does mean *place where verbing occurs*, it also means *place where state/condition obtains.* The /-ò/ on /ɲìmsáv/, *white*, has an applicative meaning of *to/on/onto.* The subject of No. 45 is a nominalized clause with an /-ò/ on /hwál/, *dig, cultivate,* and means something like *hoed in/on/around the beans.* I suppose an applicative could be considered a causative change of state, since something is done to the object of a verb with /-ò/ which changes the state/condition of the verb object in some way.

46. ahá ma-né-ò-č-am θí-hi-we #     Bring me some water to drink.

water 2-carry-APPLIC-pl-DS drink-FUT/IRREAL-do

47. hmáɲ-a-č qáw-č-ò-k-wi #     The child broke it.
The child caused it to break.

child-DEF-NOM break-DIST-APPLIC-SS-DO

48. iyá-k tàrahár-ò-k-wi-ɲ #     This is where he works.

this-INS work-APPLIC-SS-DO-PERF

In many cases, there is no expressed object with an applicative; but an object is indicated by the /-ò/. In No. 46, *me* is not expressed except obliquely by the switch-reference /-m/ on the verb. In No. 47 there is no indication of an object except the /-ò/. In No. 48 there is an adverbial particle /iyák/, *at this (place)*, but the meaning is not just: *He works here(.).* There is a focus on the place, and about the closest we can come in English to rendering this meaning is: *This is where he works.* Thus, the applicative is something like a preposition tacked onto the verb, plus or minus a verb object, including an adverbial object, indicating a state or perhaps change of state.

One could of course say that the /-ò/ in No. 48 just means that the working is an extended or continuing state at that place. Consider the following examples.

49. kihíɲ-č-ik-yu # They are circledancing.

circledance-PL-SS-BE

50. kihíɲ-č-ò-k-yu # They are doing circledancing.

circledance-PL-STA-SS-BE

No. 49 just describes what is transpiring at the moment of speaking. No. 50 refers to extended activity. For example, at a dance there might be a long period of doing circledancing. Thus, with /-ò/, the meaning is *engage in the activity for an extended period,* i.e. *a continued state of the activity.*

51. hamál-ò-č ó-p-k-yu # The sack is missing/gone.

sack-STA-NOM BE=NOT-AWAY/ABSENT-SS-BE

One could get carried away with etymology and internal reconstruction, but one must wonder whether the negative verb /óp/, *be not present*, is the same morpheme as the /-ò/. Does /óp/ mean a change of state to not present?

52. hamál-a-č pém-k-yu # The sack is empty.

sack-DEF-NOM be=lacking/empty/used=up-SS-BE

The /-ò/ in No. 51 does not mean that the sack is empty. It is like the items in Nos. 31-34, meaning that the item is gone or removed from the speaker or other reference point. If the meaning is that *The sack is empty(.)*, or, *The items in the sack have all been used up(.)*, then /pém/ must be used, as in No. 52. Thus, the /-ò/ on /hamálò/ means a continuing state of absence.

Thus, the applicative /-ò/ is much like the English word *get*, meaning *change state* or *be in a changed state*. It can be a prepositional suffix on the verb indicating and expressed or unexpressed object including a reflexive object. Perhaps a retranslation of some of the above sentences will help illustrate this. For example:

2. The coffee has gotten spilled. The coffee got spilled.
5. I got my hand cut. My hand has gotten cut.
8. I got Beth's bread for her.
20. The cottonwood tree has gotten leafed out.
26. He got killed by a bear.
28. It has gotten (to be) winter in Flagstaff.
29. The water has gotten frozen.
31. the pants that I got off, the pants that got away from me
37. The stick got left leaning against the house.
39. I got the watermelon cut.
40. I'm going to get the horse saddled up again.
41. I got a poke into him.
42. The car got a lot of dust up into the air as it went along.
43. I'm getting it small(er).
44. I got my house painted white.
45. I got my beans to turn out well.
46. Get me some water to drink.
47. The child got it broken.
48. He has gotten to working here.
50. They got to circledancing.

The reflexive-reciprocal verb suffix /-v/ is much more frequent in Walapai than in English, as noted above. Note Nos. 6, 8, 11, and 40 above. It is frequently required where it would not be necessary in English.

51. pés tahór-k-wi #    He is hiding the money.

money hide-SS-DO

52. tahór-v-ik-yu #    He is hiding (himself).

hide-REFL-SS-BE

The reflexive /-v/ occurs in No. 52 to indicate that it is the subject of the verb that is hiding. Though there is a reflexive object, the verb has the /-yu/, *BE*, suffix indicating an intransitive. In No. 6, the subject suffered the loss of the fingers. In No. 11, it was the subject that suffered the breaking. In No. 40, the subject is saddling up the horse for the subject's benefit.

53. také-v-k-yu #    It's changed.

change-REFL-SS-BE

54. qáq-v-ik #    It burst/broke open.

burst-REFL-SS

55. ɲá-č put-vi-yu #    I'm putting my hat on.

1-NOM hat-REFL-BE

56. yá-m ɲá ki-ám-p-a-č hàvsú-a-l vá-v-m-ik-yu #    This road goes to Supai.

this-ABL road AGEN-move-off-DEF-NOM    Supai-DEF-ILL arrive-REFL-HAB-SS-BE

The reflexive /-v/ can mean *change oneself* or *undergo change oneself*, or *be in a state oneself*. In No. 53, it is the subject that has changed. In No. 54, it is the subject that has changed. In No. 55, the subject has changed by putting his hat on. No. 56 is again much like the use of the reflexive in Romance languages; it describes a continuing condition of the subject.

57. ì-tikáv-a kwáw-v-ik kwáw-v-a #    We have a meeting and talk and talk.

1-assemble-TNS talk-REFL-SS talk-REFL-TNS

58. ɲà wí-v-č-u #    It belongs to me.

1 have/own-REFL-DIST-BE

59. ɲá-č ɲàhmí-v-yu #    I am married.    (woman speaking)

1-NOM husband-REFL-BE

60. ɲá-č lowé-v-yu #    I am married.    (man speaking)

1-NOM wife-REFL-Be

In No. 57, one might say that this is reciprocal, and it may well be; but the idea is that theparticipants entered into a long period of talking. In Nos. 58, 59, and 60, it is clear that the subjects have entered themselves into a long-term relationship, or have entered into a long-term condition.

61. čúv hé-v-yu # I am dressed. (woman speaking)
I am wearing clothes.

already dress-REFL-BE

62. čúv ɲi-kwáy-v-yu # I am dressed. (man speaking)
I am wearing clothes.

already POSS-shirt-REFL-BE

63. ɲá-č či-θú-v-a # I'm taking a bath.

1-NOM CAUS-wash-REFL-TNS

64. mát-a ti-siwál-v-ik-yu # They love each other.

body/self CAUS-love-REFL/RECIP-SS-BE

Nos. 61 and 62 describe a state or condition, though not as long-term state or condition as in Nos. 59 and 60. No. 63 is a reflexive quite obviously; and No. 63 is a reciprocal, which is a kind of reflexive. (The /ɲi-/ in No. 62 is inalienable possession.)

Thus, the reflexive /-v/ is a reflexive, reciprocal, or a stative descriptive of the subject, meaning that the subject exists in a certain state or condition.

The inchoative /-m/ means *entered into a state or condition just a short time ago, perhaps even just an instant ago.*

65. hmáɲ-a-č ɲi-mí-m mán-im-m-iú-č # When the baby cries, I have to get up right away.

child-DEF-NOM SUB-cry-DS get=up-INCHO-HAB-BE-DIST

66. kwê má-ɲ-čáv-a-k kwê kà-č-m-m-í-č # When were through eating, we tell stories.

thing eat-again-consume-TNS-SS thing tell-PL-tell-INCHO-HAB-say-DIST

67. kwí-č ɲá-ki-tóp-m-a-m và-hwát-im-k-yu # The clouds turn red in the evening.

cloud-NOM sun-AGEN-be=not-INCHO-TNS-DS INTNS-red-INCHO-SS-BE

In No. 65, the /-m/ means *start right away*. In No. 66, the idea is that the participants *start to tell stories/get to telling stories*. In No. 67, the idea is *When the sun starts to go down (be not), the clouds start to turn red*. Thus, this /-m/ means *enter into a state or condition very recently/change state or condition only a short time ago.*

Thus, the /-ð/, /-v/, and /-m/ indicate various states or conditions and/or changes in states or conditions, as described above.

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STA, stative; SS, same subject; CAUS, causative; FUT, future; INTNS, intensive; REFL, reflexive; APPLIC, applicative; PERF, perfect; DEF, definite; NOM, nominative; ABL, ablative; ILL, illative; AGEN, agent; INS, inessive; SUB, subordinate; IRR/IREAL, irrealis; DIST, distributive; HAB, habitual; TNS, tense; POSS, possessive; RECIP, reciprocal; DS, different subject.

# Vowel Length in Yavapai Revisited

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## 0.0 Introduction

This paper addresses the issue of vowel length in Yavapai and its relationship to pitch, vowel quality and lexical category.

Yavapai belongs to the Pai branch of the Yuman family. Included within the Pai branch are Hualapai, Havasupai, and Paipai. Hualapai, Havasupai and Yavapai are spoken in Arizona. Paipai is spoken in Baja California. Yavapai consists of three major dialects—Southeastern, Northeastern, and Western (Joël, 1964 ). In much of the literature, "Western Yavapai" is also known as "Tolkapaya."

The exact number of remaining speakers of Yavapai is unknown. Chafe (1962) estimated that in the early 1960's, there were between 100 and 200 Yavapai speakers of all ages. Present day figures range from 20 to 30 Yavapai speakers with most of these speakers over the age of sixty (Shaterian p.c. 1991). On a recent visit to Arizona, older Yavapai speakers said that they know of two Yavapai speakers between the ages of twenty-five and thirty years old. However, the level of fluency which these speakers have attained is unknown. Also, very few of the older speakers are Yavapai dominant. Shaterian ( p.c. 1991) states that there is possibly one monolingual speaker of Yavapai.

## 0.1 The Yavapai Word

We will begin by considering the underlying representation of a Yavapai word to typically consist of the following phonemic shape, where c is any consonant and v is any vowel: $(c^*)[c\acute{v}(c)]_{root}\,(c^*)(v)$. The root is enclosed in brackets. Parentheses represent optional elements. An asterisk represents numbers from zero to some arbitrary number. The root vowel may have a vowel length contrast but no vowel clusters. Primary stress is always on the root. There are restrictions on the possible consonant clusters in the phonetic output. The surface representations in Table 1, in Appendix A, are derived from schwa insertion as well as other phonological processes such as consonant gemination (Shaterian, 1983). However, for the purposes of this thesis, the question of syllabifying these pre- and post-tonic consonant clusters is not primary because we will only be looking at the stressed root vowel. In this paper the phonetic forms and the presumed underlying forms and affixes follow Shaterian's (1983) analysis of Yavapai phonology. Both phonemic and phonetic forms are shown in Table 1.

There are five phonemic vowels in Yavapai: /a, e, i, o, u/. All five of these vowels are recorded as occurring with three distinct vowel lengths. In addition, according to Shaterian's word list in his dissertation, there are no restrictions holding between codas and the length category of the preceding vowel. That is, all purported length categories can occur in closed syllables independent of the feature specifications of the following coda consonant.

## 0.2 Previous Accounts of Pai Vowel Length

The past three decades have produced several diverse views regarding Yavapai phonetic vowel length and its implications for Yavapai phonology. What follows is a brief review of previous proposals on Pai vowel length.

Redden stated that vowel length in Hualapai is not phonemic but merely a result of the rhythmic stress pattern of the language.

> Vowel length is conditioned by the alternating-stress system, but phonetic vowel length has a very complex distribution. Because of this complexity, it looks at first blush as though vowel length is phonemic...Overlength is a stylistic feature indicating intensity... There are three stress phonemes: primary, secondary, and weak...(1966: 8 )

Redden (p.c. 1990) also holds the same view of Yavapai vowel length. He rejects even the basic notion of two distinctive vowel lengths in the Pai branch, an analysis which seems to be well established among Yumanists. Langdon (1976) reconstructs two distinctive vowel lengths for Proto Yuman. As well, she states that many Yuman languages have maintained this distinction (1976:129)

Joël's work on Paipai is in direct opposition to Redden's viewpoint. Joël finds it necessary to work with three distinctive vowel lengths. She does, however, express dissatisfaction at her inability to come to what she believes to be a satisfactory solution to the problem of vowel length and overlength in Paipai.

> The author desires to state that the phonemic treatment of vowel length is highly unsatisfactory. Every Paipai form, nevertheless, must be 'spelled'--with a short vowel if short, with a long vowel if long, and with a vowel of indifferent length... (1966: 85 )

Joël (1966: 85) also states that in earlier drafts of her work on Paipai she attempted to treat vowel length as a morphological process. However, Joël found this treatment of vowel length highly unsatisfactory as well. Joël systematically marks the "indefinite length" throughout her dissertation, thereby maintaining the implicit analysis of three phonetic and possibly distinctive vowel lengths.

Mauricio Mixco (p.c. 1990), who has worked extensively on Kiliwa, another Yuman language, and briefly on Paipai, has said that he actually hears three phonetic lengths in Paipai as well but was unable to consistently transcribe these lengths due to the various alternations in duration he encountered.

Kendall, although primarily working on syntactic aspects of Yavapai, notes briefly that vowel length is distinctive to three degrees.

> There is apparently more than one length contrast since one can hear both short, long, and over-long vowels. Unfortunately I did not note this consistently enough in the field to make the distinction in this monograph. Consequently long and over-long vowels are transcribed identically. (1976: xxxii )

Shaterian (1976) stated that there are three distinctive vowel lengths in

Yavapai. He reiterated these claims in his 1983 dissertation. Shaterian does not limit his remarks to Yavapai, but rather suggests a three-way vowel length distinction as a phenomenon within the Pai subgroup. He cites minimal triplets to verify his claim.

Although Shaterian's statements on Pai vowel length are strong, he does suggest that there may be a relationship between vowel length and pitch. He maintains that there are at least two distinctive pitches in the language which may well be related to vowel length.

> I have found, in addition, distinctive pitch in both...[Northeastern Yavapai] and ...[Western Yavapai], the two dialects with which I have worked most closely, although I have not yet been able to take precise acoustic measurements of the relationship between pitch and length; nevertheless, this is, I am certain, going to prove a very interesting area of research;... (1976: 88, 89)

On the practical side, he points out that Yavapai cannot be pronounced to the satisfaction of a native speaker without using three vowel lengths.

### 0.2.1 Pilot Studies

The first attempt to measure actual vowel durations of minimal triplets in order to statistically determine the number of existing vowel length categories was a pilot study by Munro (1990). Munro measured tokens elicited in isolation from two sets of minimal triplets and two sets of near minimal triplets spoken by a Western Yavapai speaker. She concluded from these measurements that there were only two operative phonetic vowel lengths in Yavapai. The findings from this pilot study are consistent with her transcriptions of Western Yavapai (Munro and Fasthorse, 1989). Munro conflates the long and the extra-long length categories into one length category because the measured durations do not correspond with the hypothesized length categories. Chart 1 below demonstrates one example from Munro's study.

**Chart 1**

| ***Shaterian's 1983 gloss*** Word | | ***Munro (1990)*** Duration (ms) |
|---|---|---|
| [ ʔaha] | 'water' | 92 |
| [ ʔahaˑ] | 'cottonwood' | 387 |
| [ ʔahaː] | 'be bitter' | 253 |

A minimal triplet used in Munro's pilot study. The transcriptions are based on Shaterian's transcriptions from his 1983 dissertation, pp. 44-45. Note that the measured durations do not correlate with the vowel length categories.

Munro accurately points out that the word which Shaterian has glossed as long actually has an extra-long duration of 387 ms. Similarly, the word glossed as extra-long has a shorter duration than the word in the long length category. As a result, Munro (1990) concludes that the long and the extra-long length categories may be conflated into one length category called "long" because the measured durations do not correlate with the hypothesized length categories. Munro bases her transcriptions on Shaterian's dissertation (1983 pp. 44-45). However, in an earlier paper (Shaterian, 1976, pp. 88), Shaterian also transcribed the same minimal triplet as in Chart 2, with 'cottonwood' as extra-long and 'be bitter' as long. Munro's corresponding duration measurements are also included in Chart 2. Note that on this transcription the measured durations do correspond to the hypothesized length categories. As a result, conflation of the long and the extra-long length categories, on the basis that the measured durations do not correlate with the hypothesized vowel length categories, can no longer be justified. In addition, ANOVA statistics performed on this minimal triplet showed that the difference between long versus extra-long was significant at p<.02. These measured durations of this minimal triplet are in agreement with Thomas and Shaterian (1991). Their study followed Shaterian's 1976 transcriptions for this minimal triplet as in Chart 2 below.

Chart 2

| *Shaterian's 1976 gloss*<br>Word | | *Munro (1990)*<br>Duration (ms) |
|---|---|---|
| [ ʔaha] | 'water' | 92 |
| [ ʔahaː] | 'cottonwood' | 387 |
| [ ʔahaˑ] | 'be bitter' | 253 |

A minimal triplet used in Munro's pilot study. The transcriptions are based on Shaterian's transcriptions from his 1976 paper, pp. 88. The measured durations do correspond with the three vowel length categories.

Statistics of Munro's pooled data, a graph of which is shown in Appendix C along with a list of the minimal and near minimal triplets she measured, show that long and extra-long are significantly distinct from each other with a p<.01. (The pooled data in Appendix C did not include the words beginning with nasals. These measurements did not reflect an accurate measurement of the vowel because the initial nasal consonant could not be separated from the vowel on the waveform. As a result, the nasal consonant was measured along with the vowel.) Although Munro's decision to conflate the long and the extra-long length categories into one length category was not substantiated by her data, Munro's pilot study does add further support to the one general claim which many Yumanists seem to agree on: that there are various alternations between long and overlong vowels.

Thomas and Shaterian (1990), in a pilot study using three minimal triplets from a Northeastern Yavapai speaker, concluded that there are three phonetic vowel lengths in Yavapai. In addition, they show that these three phonetic lengths are not dependent on pitch, as Shaterian (1983) has claimed, or lexical category, as suggested by Langdon (1977) and Munro (1990). Thomas and Shaterian (1990) ultimately concluded that the independence from pitch and lexical category (or syntactic category, as they refer to it) strongly suggests that these three vowel lengths are distinctive.

Although the various studies claim different analyses, they all recognize that vowel length in these languages is complicated and confusing. However, the fact that these various studies have recognized this complexity points to the need for a more principled explanation of the vowel length alternations in these languages. This paper attempts to provide this long-awaited explanation.

## 0.3 Status of Vowel Length in the World's Languages

The current debate on vowel length in Yuman languages is of general interest because few languages of the world boast three contrastive vowel lengths. In an article entitled "Vowels of the World's Languages," Ladefoged and Maddieson (1990) discuss three languages—Estonian, Mixe and Kamba—that use three and four contrastive vowel lengths.

Estonian, cited by Lehiste (1970), has been shown to have three vowel lengths. However, the third degree of length is dependent upon syllable structure and word patterning. Hoogshagen (1959) describes Mixe as a language which uses three contrastive vowel lengths. Unlike Estonian, vowel length in Mixe does not seem to be influenced by word patterning or syllable structure. Whiteley and Muli (1962) distinguish four contrastive vowel lengths in the Bantu language Kamba. Two of these lengths, however, are morphologically derived.

Given then the small number of languages known to utilize more than two contrastive vowel lengths, the confusion regarding vowel length in Yuman languages is perhaps more understandable. The consensus among the Yumanists surveyed here is that most agree that there are at least two distinctive vowel lengths. Redden, while denying the existence of even two distinctive vowel lengths, does find it necessary to set up what he calls "three stress phonemes" to handle the phonetic variation in duration he encounters in Hualapai, thereby implying the existence in his analysis of at least two phonemic lengths, possibly three. The main point which Yumanists do not agree on is the number of distinctive vowel lengths in Yavapai. The following study will address this question. First, it will determine whether the existence of three phonetic lengths is statistically verifiable. Secondly, it will address the relationship between vowel length, pitch, vowel quality, and lexical category—the last in an attempt to find a morphosyntactic connection. Lastly, it will explain why Yumanists have been confused by vowel length in the Pai languages.

## 1.0 Methodology

### 1.1 Speakers

The data in this study are from tape recordings Thomas and Shaterian made in 1990 of two Yavapai speakers. The first speaker, Ms. Clara Starr (CS), is a Northeastern Yavapai speaker. She is the speaker in Thomas and Shaterian (1991). The second speaker, Ms. Flora Evans (FE), is a Western Yavapai speaker who is also fluent in Apache.

### 1.2 Data collection

All forms to be discussed were recorded in isolation and in a carrier sentence. Each speaker was required to repeat the word three times pausing only briefly between each isolated utterance. This task was repeated a number of times. Each speaker was also asked to produce the word in the context of a sentence, shown in (1) below. This carrier phrase was used uniformly throughout the elicitation sessions for both speakers.

(1) /ʔpaː -β - ʧ    ʔi-k    ______    ʔi-km /
[ʔəp˺paːβʧ    ʔik    ______    ʔi-km]
person-dem-nom    say- same subj    ______    say-aux
The Indian says ________.

Words from the purported length categories representing a given vowel quality were elicited in sets, but the order of elicitation was varied across repetitions of each set. The elicitation sessions were conducted in a generally similar fashion for the two speakers. However, two differences should be noted. Many times CS could not remember the Yavapai word when specifically requested to put it in the carrier phrase. In order to rectify this problem she was asked to say the token first in isolation before putting the word in context. In this way she was able to effectively cue herself without the aid of others present. Using this method, she was able to fluently produce the carrier phrase with the correct token. These tokens represented extremely short and mostly inaudible utterances unrepresentative of her natural speech. These isolation tokens immediately preceding the carrier phrase are not considered in the following analysis. FE was able to produce the token fluently in context without the aid of an initial isolation token.

The second difference between speakers concerns isolation tokens. CS produced each isolation token (in triplicate) clearly with just a brief pause in between each repetition. All three of these repetitions represented a reliable utterance and are therefore considered in the following analysis. FE tended to whisper the final repetition of the isolation triple more times than not. As a result, this third isolation token is not included in her analysis.

In addition to the aforementioned exclusions, samples where the speakers hesitated or seemed to be thinking out loud were excluded from the analysis as well. These differences in data elicitation and collection are minor and not expected to affect the results in any way.

## 1.3 Instrumental Methodology

Once the proper samples were identified, the duration of the stressed vowel in each token was measured using a digital sound spectrograph (Kay Elemetrics, DSP, Model #5500). Each token was displayed on screen as a wide-band spectrogram.

The general difficulty in measuring duration is consistency. The measurement techniques described below were used in an attempt to control as many variables as possible.

The technique involved locating the vowel, demarcating it between two time cursors, and noting the duration in milliseconds. The vowel was measured from its onset, defined as the end of the preceding consonant to the end of the voice-excited formant for the vowel. Because word-final vowels trail off into voicelessness, the major difficulty was demarcating the end of the vowel. The end of voicing for the vowel was determined by visually inspecting the spectrograph display as well as by a listening method, described below.

The listening method involved positioning one cursor near the end of the vowel and a second cursor just beyond the end of the word, when the vowel in question was word final. The portion between the cursors was then played to detect whether it included perceptible voicing. If some voiced vowel was heard, then the first cursor was moved further toward the second cursor (i.e., toward the end of the vowel). The process continued until no voicing was heard. The position of the first cursor was then judged to be the end of the vowel, and it always corresponded closely to the location chosen by examining formants. In the case of vowels followed by a consonant, the same procedure was used. The end of the vowel was determined at the point where clear voicing of the vowel ended and the following consonant began. Segmenting the vowel from preceding consonants was straightforward except in cases where the adjacent segment was [y] or [w]. In the cases where [w] preceded a vowel, the onset of the vowel was considered to be the temporal midpoint of the F2 transition of the [w] and the following vowel. When [y] preceded a vowel, the length of this consonant was disregarded, and the onset of the vowel was considered to be the onset of F2. The end of the vowel in these two cases was determined as previously described.

### 1.4 Data Set

The words listed in Table 1 in Appendix A constitute the data set. The length classifications follow Shaterian's (1983) transcriptions. There was only one case in which the author differs from Shaterian (1983). The reclassification of this word was made based on auditory impressions in the initial practice sessions of data collection. Minimal triplets and near minimal triplets for /a/ and /u/, respectively, were available. Appropriate words from the three length categories were chosen for the remaining vowels since there were no minimal or near minimal triplets available. The resulting data set falls short of the ideal in several respects but represents the best that could be obtained given the constraints of the lexical materials consulted and the circumstances under which the field recordings were made. The lengths will be referred to as short, long ( · ), and extra-long ( : ). The term "duration" will only be used to refer to measured quantities of length in milliseconds. It should be noted that an "extra-long" vowel does not always have longer duration than a "long" vowel. Morpheme boundaries are indicated by a hyphen. The root vowels to be discussed are in boldface. Primary stress is marked by an acute accent. Each box which contains Yavapai words shows both a phonemic form and its corresponding phonetic form directly below it.

### 2.0 Results

The basic question under consideration here is: do the duration measurements substantiate the categories implied by Shaterian's transcriptions? The presentation of the data will proceed as follows: mean durations for each vowel phoneme will be calculated separately for each speaker and are presented graphically. Analysis of Variance (ANOVA) was performed in order the compare the short, long and extra-long length categories. A one-way ANOVA was conducted with length as the main effect. Post hoc analysis using the Scheffé F-test for multiple simultaneous comparison of means was performed in order to compare short/long and short/extra-long. A one-way ANOVA excluding the short length category was performed in order to obtain specific p-values for the comparison of long/extra-long. These statistical results for each speaker are presented in tabular form in Appendix B. The terms significant (shown as two asterisks on the graphs) and marginally significant (shown as one asterisk on the graphs) refer to p-values of less than .01 and .08, respectively. For exact values, refer to the corresponding table. It should be noted that the statistical analysis was performed separately on isolation and context tokens. That is, isolation and context data were never pooled across length categories. The reasons for this will be discussed later in the thesis.

What follows is a short synopsis of the duration results, which mainly focuses on the differences between the long and extra-long length categories since comparisons of short/long and short/extra-long were nearly always significant. In later sections, pitch contours, vowel quality and lexical category, all of which are thought to influence vowel duration, are considered in turn.

### 2.1.0 CS Duration Results for /a/, /e/, /i/, /o/, /u/

### 2.1.1 CS /a/

Note that the mean difference between the long/extra-long length categories in isolation was only 18 ms. ANOVA, performed on the long/extra-long length categories in isolation, showed that the difference between long and extra-long was not significant. The difference between long and extra-long when items were read in context was 40 ms and was marginally significant.

### 2.1.2 CS /e/

In isolation, there were no discernable differences between the long and the extra-long length categories. The long length category exceeded the extra-long one by 19 ms. The difference between long/extra-long was not significant.

In context, the same effect was found. The long length category exceeded the extra-long one by 8 ms. Again, the difference between long/extra-long was not significant.

### 2.1.3 CS /i/

Note that there was a 141 ms difference between the short/long length categories and 190 ms difference between the long/extra-long length categories in the expected order. The difference between long/extra-long was significant.

In context, there was a 70 ms difference between the short/long pair while the difference between the long/extra-long length pair was 155 ms in the hypothesized order. The difference between long/extra-long was significant.

### 2.1.4 CS /o/

In isolation the mean difference between the short/long length categories was 230 ms while the difference between the long/extra-long length categories was only 17 ms in the expected order. The 17 ms difference was not significant.

However, context results show a mean difference of 210 and 55 ms for short/long and long/extra-long respectively and in the expected order. The long/extra-long length comparison was marginally significant.

### 2.1.5 CS /u/

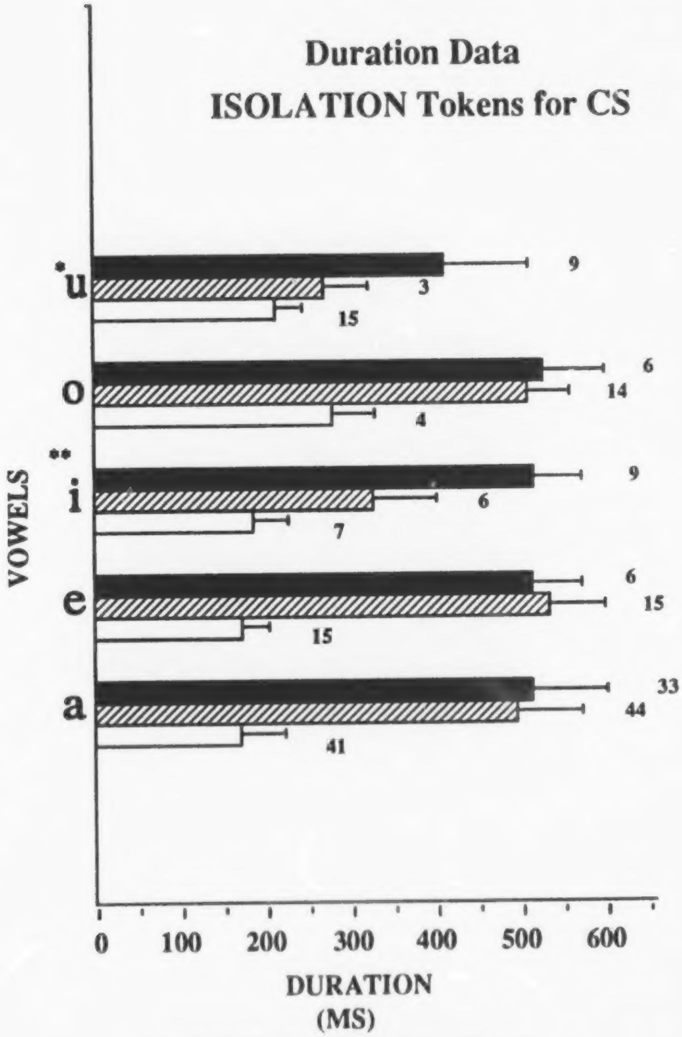
Isolation tokens showed a difference of 56 ms and 141 ms between the short/long and long/extra-long length categories, respectively, in the expected order. The difference between the long/extra-long length pair was marginally significant.

In context the mean difference between the short/long length categories was 58 ms while the difference between long/extra-long was 56 ms. The difference between long/extra-long was not significant.

### 2.1.6 ANOVA Statistics for /a, e, i, o, u/ for CS

Figures 1 and 2 represent the mean durations in milliseconds (ms) of the three length categories (V, Vˑ, Vː) for both isolation (tx) and context (tc) tokens, respectively, for the five phonemic vowels in CS's speech. The standard deviations are represented by horizontal line bars. The asterisks on the graph, which represent levels of significance, refer to the comparison of long versus extra-long only. For significance levels of short/long and short/extra-long, refer to Appendix B.

## Figure 1



Duration Data
ISOLATION Tokens for CS

**Figure 1- Duration data of isolation tokens for CS for the vowels /a, e, i, o, u/. The short, long and extra-long length categories are represented by the white bar, the hatched bar and the black bar, respectively. Standard deviation is represented by the horizontal line bars. N-values are to the right of the standard deviation bars. Two asterisks represent significance at better than the .01 level while one asterisk represents marginal significance at better than the .08 level.**

Figure 2

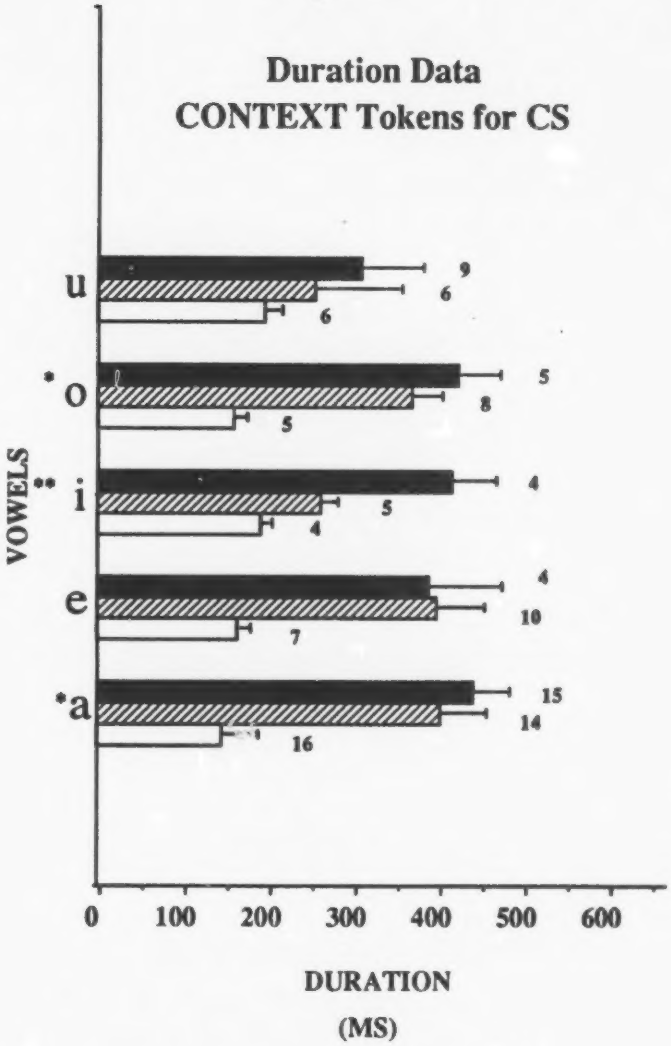


Figure 2 - Duration data of context tokens for CS for the vowels /a, e, i, o, u/. The short, long and extra-long length categories are represented by the white bar, the hatched bar and the black bar, respectively. Standard deviation is represented by the horizontal line bars. N-values are to the right of the standard deviation bars. Two asterisks represent significance at better than the .01 level while one asterisk represents marginal significance at better than the .08 level.

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Tables 2 and 3 in Appendix B contain a summary of the statistical analysis performed on /a, e, i, o, u/ of words in isolation and context, respectively, for CS. Note, as previously described in the text, that in Table 2, which refers to tokens in isolation, a comparison of the long/extra-long length categories for /i/ was significant; /u/ was marginally significant. Context data, presented in Table 3, showed comparisons of the long/extra-long length categories for /a/ and /o/ to be marginally significant while /i/ was significant.

### 2.2.0 FE Duration Results for /a/, /e/, /i/, /o/, /u/

Note that for the vowel /o/, the word [yoː] 'tooth' was not elicited from this speaker. Otherwise, the data set for this vowel was the same as for CS. Also note that Set 5a for the vowel /a/ was not elicited from this speaker. Neither was context data for /i/ because of time constraints.

### 2.2.1 /a/

There is a mean difference of 251 ms between the short and the long length categories. The long length category exceeds the extra-long length category by 42 ms. Table 4 shows that the comparison of the pooled data between long/extra-long was not even marginally significant.

For /a/ in context, the mean difference between the short/long length categories was 153 ms; between the long/extra-long categories it was 32 ms in the expected order. Table 5 shows that the difference between long and extra-long for /a/ for context tokens was marginally significant.

### 2.2.2 /e, i, o, u/

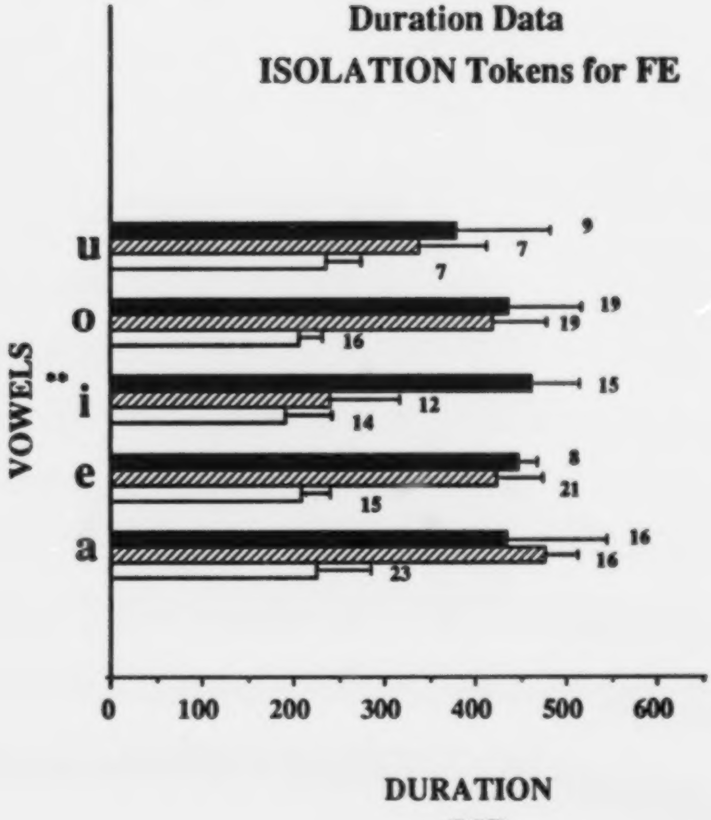
Vowels /e/, /o/ and /u/ in both context and isolation showed only non-significant durational differences between the long and the extra-long length categories. For /i/, the extra-long length category exceeded the long length category by 220 ms in isolation. This difference was significant. Unfortunately, context data for /i/ was not available.

### 2.2.3 ANOVA Statistics

Figures 3 and 4 represent the mean durations in milliseconds (ms) of the three length categories (V, V·, Vː) for both isolation (tx) and context (tc) tokens, respectively, for the five phonemic vowels in FE's speech. The standard deviations are represented by horizontal line bars. The asterisks on the graph, which represent levels of significance, refer to the comparison of long versus extra-long only. For significance levels of short/long and short/extra-long, refer to Appendix B.

Tables 4 and 5, in Appendix B, contain ANOVA results for FE for vowels /a, e, i, o, u/ for isolation and context data, respectively. Note that, in isolation, comparison of long/extra-long, was significant for /i/. Other vowels were not at all significant. In context, only /a/ was marginally significant. Data for /i/ in context was not available for this speaker. Comparisons of long/extra-long for /e, o, u/ in context were not significant at even the marginal level.

Figure 3



Duration Data
ISOLATION Tokens for FE

Figure 3 - Duration data of isolation tokens for FE for the vowels /a, e, i, o, u/. The short, long and extra-long length categories are represented by the white bar, the hatched bar and the black bar, respectively. Standard deviation is represented by the horizontal line bars. N-values are to the right of the standard deviation bars. Two asterisks represent significance at better than the .01 level while one asterisk represents marginal significance at better than the .08 level.

**Figure 4**

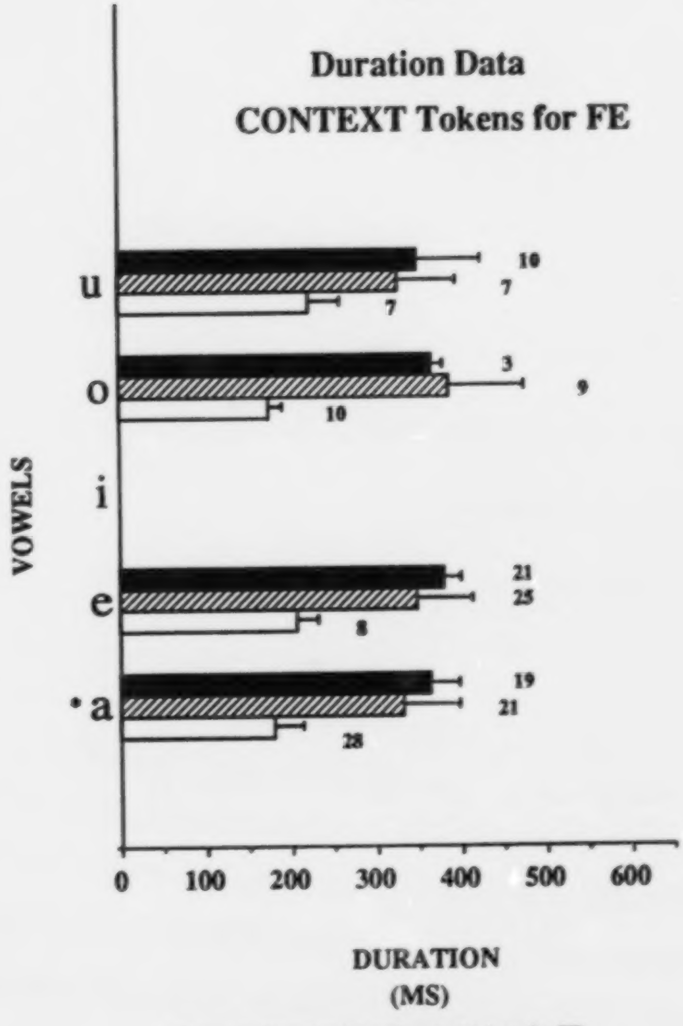


Figure 4 - Duration data of context tokens for FE for the vowels /a, e, i, o, u/. The short, long and extra-long length categories are represented by the white bar, the hatched bar and the black bar, respectively. Standard deviation is represented by the horizontal line bars. N-values are to the right of the standard deviation bars. Two asterisks represent significance at better than the .01 level while one asterisk represents marginal significance at better than the .08 level.

## 2.3.0 Boundary Length Effects

### 2.3.1 Word Length Effects

Lehiste (1972) showed that adding syllables to an English word reduces the duration of the stem vowel. According to Lehiste, temporal readjustment ignores syntactic and morpheme boundaries; the relevant domain for timing is the number of syllables in a word (not the number of segments, as previously proposed by Gaitenby, 1965). Tarnóczy (1965), working with Hungarian, also demonstrated that a longer word had shorter vowel duration than a short word. Note that throughout the data set in this study, words of any particular vowel quality may have one to four syllable words in any length category (except for the vowel /a/, which had only two-syllable words in every length category. There is, therefore, a possibility that results were skewed by differences in word length.

For /o/, note that the long length category contains two two-syllable words — [katʰoˑ ] 'tripe' and [ʔakʰoˑ] 'my daughter's child' — while the extra-long length category contains one one-syllable word — [yoː] — 'tooth' and one two-syllable word [θm̩poː] 'bee'. Word length effects might shorten the duration of the vowel in the long length category while the extra-long vowel of the one syllable word might be longer, thereby skewing the results in the direction of distinct length categories. An ANOVA, with length as the main effect, performed on the disyllabic words [katʰoˑ] 'tripe', [ʔakʰoˑ] 'my daughter's child' and [θm̩poː] 'bee', showed that in context for CS, long versus extra-long was significant at the .01 level. The same comparison was performed for FE; the results were not significant. The monosyllable words [θoˑ] 'eat meat' and [yoː] 'tooth' were compared for CS in context using an ANOVA with length as the main effect ([yoː] 'tooth' was not elicited from FE). There was a 65 ms difference between the long length category and the extra-long length category in the expected direction. This difference was significant. The results obtained for the vowel /o/ in this section are significant while the results from the analysis presented in §2.1.0, which included one- and two-syllable words within the long and extra-long length categories, were only marginally significant for CS. For FE, comparison of disyllabic words in this section are the same as the results obtained in §2.2.0, which included one monosyllable and one disyllable in the long length category.

Note that, for CS, /i/ contains words which have one and two syllable words in the short length category, two and four syllable words in the long length category, and one and two syllable words in the extra-long length category. In order to examine word length effects, the two-syllable word was chosen from each length category. A one-way ANOVA was performed on the following three words: [ʔiʔi] 'I say', [stiˑti] 'rip' and [ʔiʔiː] 'wood'. Post-hoc analysis using the Scheffé F-test showed that all comparisons of length categories were significant at better than the .01 level. (Context data for /i/ for FE was not available.) This finding is consistent with the overall results in the present study, presented in §2.1.0, when four-syllable and one-syllable words are compared together.

For /e/, the words in the extra-long length category are three and four syllables long while words in the short and long length categories are one or two syllable words. For example, compare words such as [muweˑ] 'be warm' with [yukl̩lm̩meː] 'eyebrow'. In this case, word length effects might reduce the durational differences between the length categories. Nonetheless, FE shows the extra-long length category exceeding the long one by 30 ms in context. This difference was not significant. CS showed the duration of the long length category exceeding the extra-long one by 12 ms. One- or two-syllable words in the extra-long length category may yield different results.

In order to examine word length effects for /u/, the near minimal triplet [ʔyu] 'my eye', [ʔyuˑ] 'owl' and [huː] 'nose' was compared for both speakers. In isolation, both speakers showed a significant difference between all length categories, which is consistent with Thomas and Shaterian (1990). However, in context, there was not a significant difference between the long and extra-long length categories, which is consistent with the overall results for /u/ in the present study in §2.1.0 and §2.2.0.

While the results of these comparisons are somewhat ambiguous, word length effects do not seem to play a major role in the overall results within any particular vowel in context . The case of /e/ requires further examination because only three- and four-syllable words were available in the extra-long length category.

### 2.3.2 Duration differences between Context and Isolation Utterances

Figure 5 shows the means of the short, long and extra-long length categories for isolation and context data pooled across vowel qualities. Note that the absolute durations of the utterances for any one length category in isolation are always longer than those in context. Both speakers showed a consistent difference between isolation and context utterances for each length category. The isolation utterances were on average 21% ± 8% longer than those in context. This lengthening effect seen in isolation is indicative of prepausal lengthening.

Prepausal lengthening is a phenomenon which lengthens the final syllable of words that occur before pause boundaries. Oller (1973) and Crystal et al., (1988) both report prepausal lengthening in English. Delattre (1966) reports final syllable lengthening in Spanish, German, English and French.

Recall that in this study, the frame sentence used to elicit words in context had another word after the target word. As a result, we would not expect prepausal lengthening in context data. However, isolation tokens were said in triplicate with a pause after each repetition. It is therefore possible that prepausal lengthening may be operating in isolated utterances in Yavapai. A comparison of isolation and context data revealed that the duration of each length category in isolation is longer than its corresponding length category in context, as depicted in Figure 5. Note also that both speakers showed that the long length category underwent the largest amount of lengthening in isolation. For CS, the long length category was 34% longer than it was in context while the short and the extra-long length categories were only 16% and 26% longer than their corresponding length categories in context. For FE, the long length category in isolation was 23% longer that it was in context while the short and the extra-long categories were 15% and 12% longer in isolation than they were in context, respectively. Prepausal lengthening has applied to all three length categories in isolation because any one length category is longer in isolation than it is in context. However, the extra-long length category seems to have reached its maximum duration and cannot stretch in duration as much as the long length category. In such cases, neutralization might be seen. Restricting the quantity of lengthening in the extra-long length category predicts neutralization in isolation tokens of a contrast which is apparent in context, where prepausal lengthening of this sort did not apply.

Figure 5 shows that, indeed, the disproportionate lengthening between the long and the extra-long length categories results in the neutralization of these two

## Figure 5

## Pooled Duration Data comparing Context and Isolation Utterances

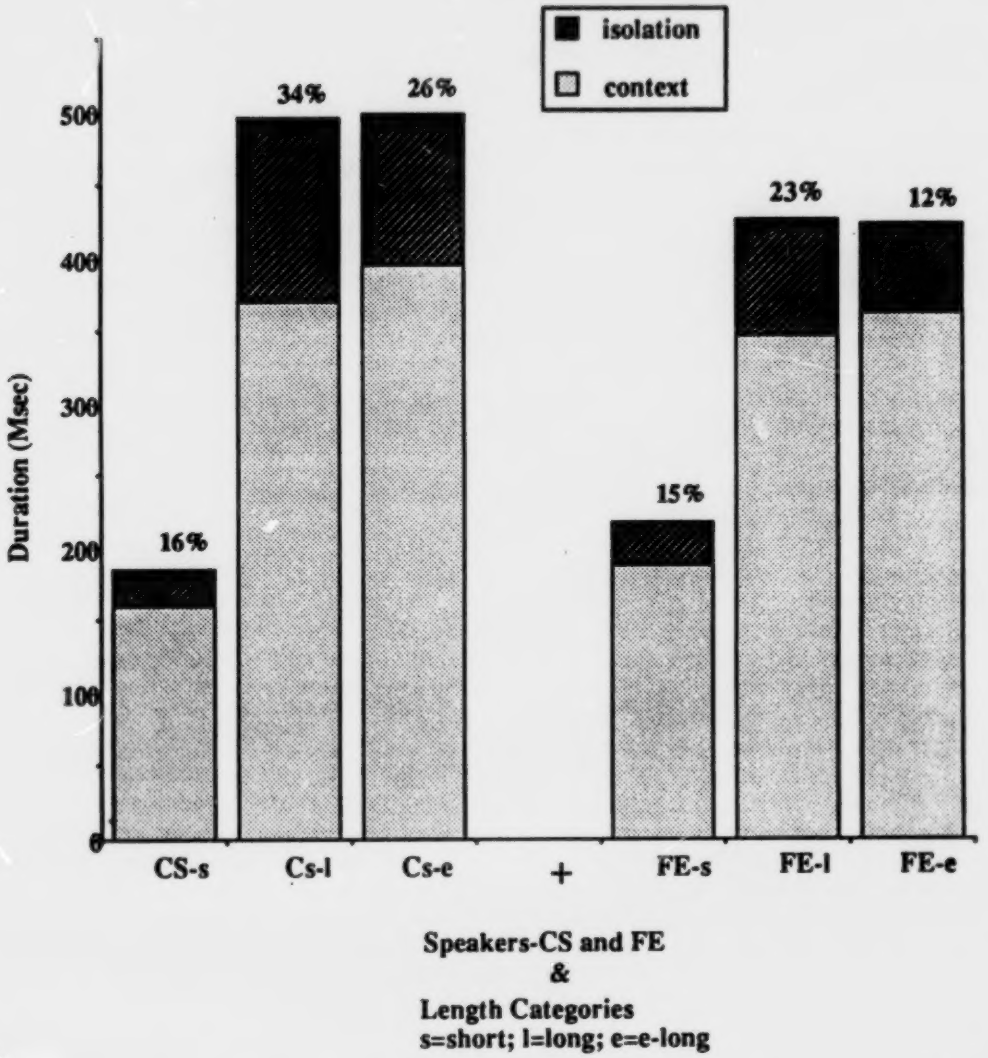


**Figure 5 - This graph compares the duration of isolation tokens to the duration of context tokens for both speakers. The data is pooled across vowel qualities. The graph shows that tokens in isolation are always longer than tokens in context. The percents above the columns represent the additional duration observed in isolation tokens.**

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categories in isolation. For CS, the long length category stretches 8% more than the extra-long length category, resulting in the durations of 496 ms and 498 ms for long and extra-long, respectively. FE showed the same pattern. That is, the long length category was 11% longer than the extra-long length category yielding 426 ms and 424 ms for the long and extra-long length categories, respectively.

Whereas Figure 5 shows neutralizations between the long and the extra-long length categories, no such neutralizations were seen between the short and the long length categories. We do not see confounding between the short and long length categories because the long length category exceeds the short length category by at least 50% in context, where lengthening does not seem to occur. Lehiste (1970) shows that for Estonian, a language with three degrees of length, the long length category is 72% longer than the short length category while the extra-long length category is only 18% longer than the long length category. (It should be noted that the 18% difference in vowel length is not necessarily distinctive by itself, as Estonian vowel length is dependent on syllable structure and word patterning.) In Yavapai, the long length category is at least 100% longer than the short length category for both speakers. However, the extra-long length category is only 7% to 8% longer than the long length category in context. When stretching does occur as seen in isolation, the long length category stretches further than the short length category thereby maintaining its duration difference. As a result, we would not predict confusion between the short and the long length categories.

Confounding of the short and long length categories in isolation might occur if the long length category does not undergo prepausal lengthening while the short length category lengthens. A case in point is /i/. An ANOVA, performed on the disyllabic words [ʔiʔi] 'I say', [stiˑti] 'rip' and [ʔiʔiː] 'wood', showed only marginal significance between the short and long length categories, with the long length category only 30% longer (instead of the minimum 100% difference that was customarily observed between the short and long length categories) than the short length category for CS. For FE, the long length category was only 6% longer than the short length category in isolation.

The confounding of the short and long length categories in isolation may be attributed to prepausal lengthening. Presumably, prepausal lengthening did not apply to the root vowel in [stiˑti] 'rip' because the root vowel in this case was not word final, and hence not prepausal as well. In this case, the short length category increased significantly in duration due to prepausal lengthening while the long length category did not increase in duration at all as we have otherwise seen, precisely because it is not prepausal. When the duration of the long length category in isolation is compared with its duration in context, the long length category is only 9% longer in isolation than in context, which shows that very little lengthening occurred.

For both speakers, there is evidence that isolation utterances undergo prepausal lengthening. Prepausal lengthening seems to be restricted to the final root vowel when it is word final. Both speakers seem to be utilizing the same strategy where the extra-long length category undergoes proportionately less lengthening than the long length category, resulting in neutralization of the long and extra-long length categories. The relevant data needed in order to determine distinctive vowel length in Yavapai are those tokens elicited in context, not in isolation.

If this account of prepausal lengthening is correct, it would account for much of the confusion that Yumanists have encountered when working with the

Pai languages. Joël's description of Paipai as having an "indefinite" vowel length or one which "varies in quantity" may be applicable to isolated utterances in Yavapai. Her "indefinite" length coincides with the excessive stretching of the long length category in isolated utterances in this study.

### 2.4 Interspeaker Comparison and Discussion

While looking at data from individual speakers, vowels, and minimal triplets within a particular vowel has helped to clarify individual speaker strategies, we would like to know what is common to both speakers. In order to determine this, a three-way ANOVA with LENGTH (long vs. extra-long), SPEAKER (CS vs. FE) and VOWEL ( /a,e,o,u/) as the main effects, was performed on context data of the long and the extra-long length categories only. The vowel /i/ was not included in this analysis because context data from FE was not available for this vowel. The results of this analysis are presented in Table 6. Figure A, which follows Table 6, graphically depicts the duration results observed in Table 6. Figure A shows the duration results pooled across speakers and vowels. There was a marginally significant main effect ($p< .02$) of LENGTH on vowel duration. The duration of the long length category was 355 ms while the duration of the extra-long length category was 378 ms. That is, the extra-long length category exceeded the long length category by 24 ms or 7%. This effect of length was independent of speaker and vowel, as indicated in Table 6, by the non-significant interactions between LENGTH X SPEAKER (BC) and LENGTH X VOWEL (AB). Also note that the interactions of VOWEL X LENGTH X SPEAKER (ABC) were not at all significant.

There was a highly significant main effect of VOWEL on duration. Vowels /a/, /e/ and /o/ are nearly equal in duration at 379 ms, 370 ms and 386 ms, respectively. However, /u/ differed significantly from the other three vowels, with a duration of 313 ms. There was a significant interaction between VOWEL and SPEAKER. For CS, there was a correlation between vowel height and vowel duration. The low vowel /a/ had the longest duration at 423 ms, while the high vowel /u/ had the shortest duration at 288 ms. Vowels /e/ and /o/ had intermediate durations of 394 ms and 389 ms, respectively. This result corresponds well with studies on intrinsic vowel durations, which show that low vowels are longer in duration that high vowels (Lehiste, 1970). The vowel durations of FE showed no such correlation to vowel height. /u/ had the shortest vowel duration at 335 ms while /o/ had the longest duration at 382 ms. /a/ and /e/ had intermediate durations of 347 ms and 356 ms, respectively.

This analysis showed that the long and extra-long length categories are distinctive. Furthermore, this distinction between the long and the extra-long length categories was maintained regardless of SPEAKER and VOWEL. We can conclude from this analysis that both speakers are utilizing three degrees of length.

We will now examine non-durational factors which may influence vowel duration. In these analyses we will focus primarily on data obtained in context due to the possible occurrence of prepausal lengthening in isolation tokens.

# Table 6

Three-way ANOVA on the long and extra-long length categories of the context data for CS and FE with LENGTH, VOWEL and SPEAKER as the main effects

| INTERACTION | ANOVA | p-value |
|---|---|---|
| VOWEL (A) | F(3,161) = 13 | p < .001 |
| LENGTH (B) | F(1,163) = 6 | p < .02 |
| SPEAKER (C) | F(1,163) = 3 | p < .2 |
| AB | F(3,157) = .5 | p < .8 |
| AC | F(3,157) = 8 | p < .001 |
| BC | F(1,161) = .6 | p < .5 |
| ABC | F(3,149) = .9 | p < .5 |

**Table 6 - This chart depicts the results of a three-way Anova. This ANOVA showed a significant interaction of LENGTH (B). Also note the non-significant interactions of LENGTH X SPEAKER (BC), LENGTH X VOWEL (AB) and LENGTH X VOWEL X SPEAKER (ABC), which show that both speakers are using three distinctive vowel lengths for all five vowels.**

## Figure A

## OVERALL DURATION RESULTS

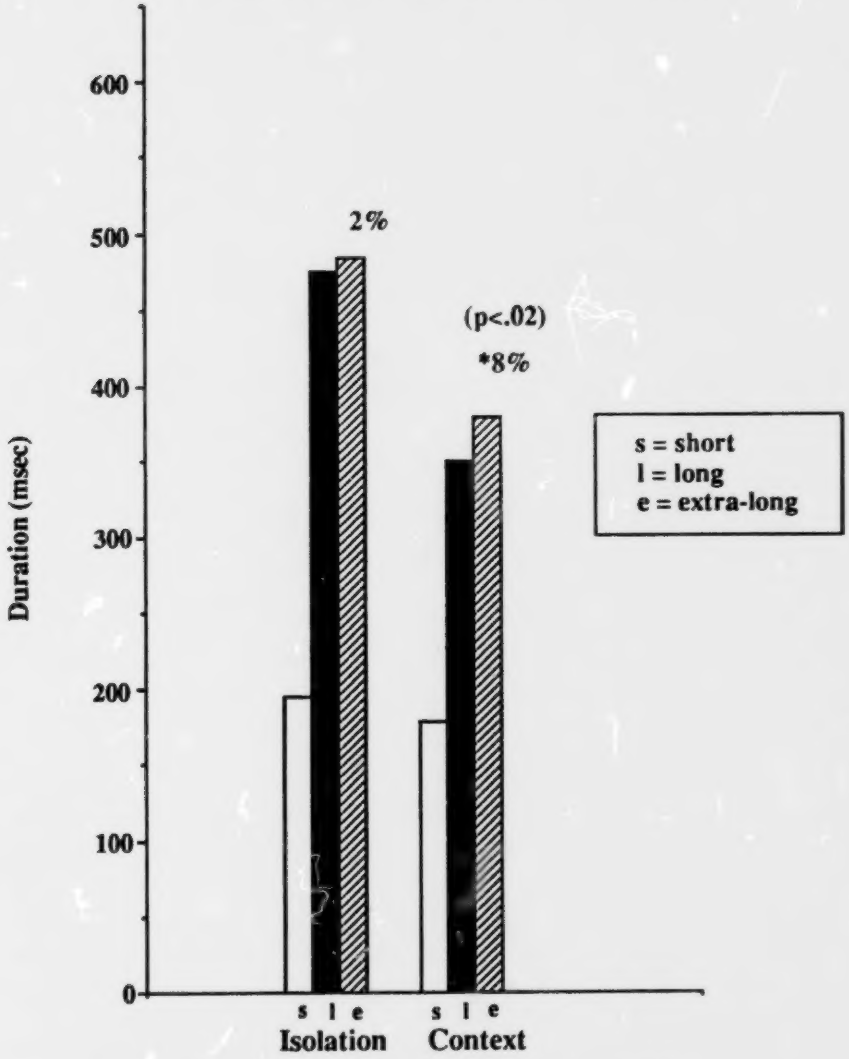


**Figure A** - This figure shows the duration results for isolation and context data pooled across vowel qualities and speakers. It corresponds to Table 6 in the text. The percents show that the extra-long length category exceeds the long length category by 2% and 8% for isolation and context, respectively. The 8% difference observed in context was marginally significant at better than the .02 level. Comparisons of short/long and short/extra-long were significant for both isolation and context data at better than the .01 level.

## 3.0 Pitch

### 3.1 Introduction

Lehiste (1970) notes that the third degree of vowel length in Estonian is accompanied by a falling $F_0$ contour. Woo (1969), working with Mandarin, discovered that more complex pitch patterns were correlated with extra-long vowel lengths. Given that in both tonal and non-tonal languages vowel length and pitch may be correlated, and the fact that Shaterian has recorded varying pitch patterns for the forms cited in the data set in Table 1 (refer to Shaterian, 1983 for his discussion of Yavapai pitch), it is necessary to determine how pitch and vowel length interact in Yavapai.

In order to establish the relationship between pitch and vowel length, pitch contours of the words which showed at least a marginal distinction of all length pairs in context will be examined.

### 3.2 Methods

Pitch contours were measured by looking at a narrow-band spectrogram in which the harmonics were displayed. Fundamental frequency was calculated from the harmonic most clearly visible throughout the vowel. To represent the moving pitch contour, measurements were taken at the onset, the mid-point and the offset of the harmonic.

### 3.3 Results

#### 3.3.1 Pitch Contours for /a/.

Separate analyses were conducted for the speakers. A one-way ANOVA was performed on the measurements at the onset, the midpoint and the offset, with length as the main effect. No main effect of the length categories was observed for any vowel, for either speaker. Post hoc analysis on the means using the Scheffé F-test for multiple simultaneous comparison of means showed that all comparisons of short/long and long/extra-long were not significant. Figures 6 and 7 on the next two pages depict the pitch contours for CS and FE, respectively, pooled across vowel qualities. Note that the major difference in pitch is that the offset of the extra-long length category is more exaggerated for both speakers. CS basically uses a rising pitch pattern. As the vowel gets longer, the offset of the pitch gets much higher. FE uses the same strategy but in the opposite direction. That is, her pitch falls very low on the offset of the extra-long vowel. This could be a basic dialectal difference or an idiosyncrasy of either speaker. For each speaker then, the offset of the pitch is more extreme in the extra-long category. However, this difference is not statistically significant. The most important rise or fall with respect to a Yavapai speaker is probably the movement from the onset to the midpoint, not the landing site of the offset, which seems to be merely the further projection of the established pitch trajectory. Since the speakers differ in the pitch patterns they use, it does not seem that any particular pattern can be associated with any of the length categories.

### 3.4 Conclusion

No differences were observed in the basic pitch patterns of the three length categories in any of the five phonemic vowels. The same general pitch patterns were observed for CS in Thomas and Shaterian (1990). Pitch accent does not seem to play a role in predicting vowel length in context utterances. This agrees with Wares' discussion of Paipai vowel length.

Figure 6

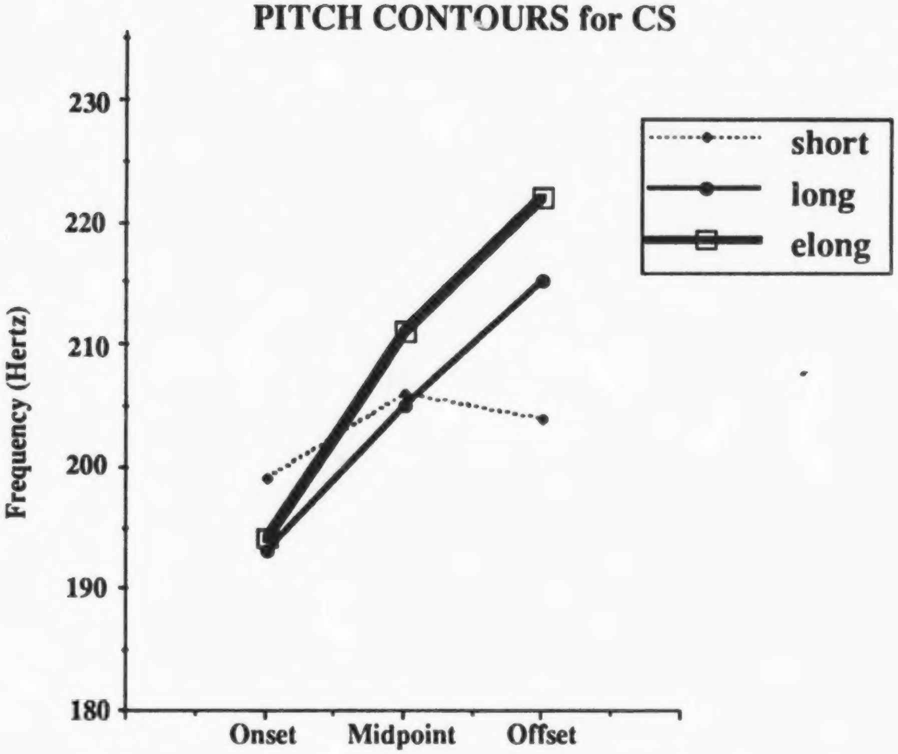


Figure 6 - This graph represents the pitch contours of the short, long and extra-long vowel length categories for CS. The data is pooled across vowels. Notice that the differences in offset are a function of the length of the vowel. They were not statistically significant. Also note that the basic pitch pattern for this speaker is a rising contour.

Figure 7

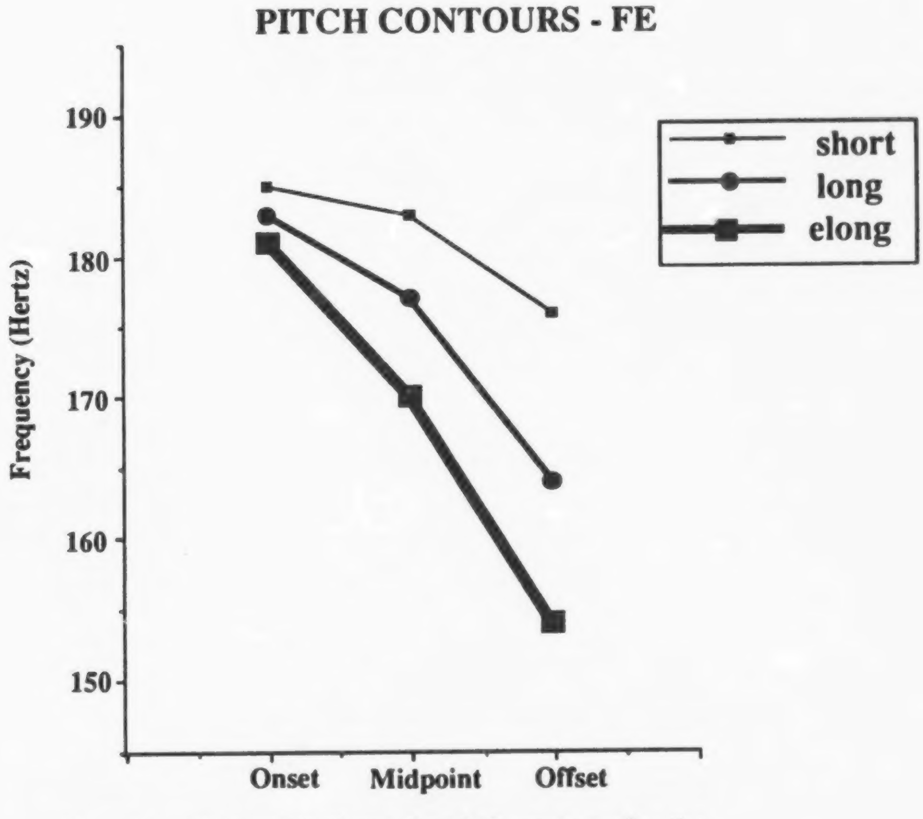


**Figure 7 - This graph shows the pitch contours for the short, long, and the extra-long length categories, pooled across vowels, for FE. Note that the pitch of this speaker has a falling contour. The differences in pitch at the onset, midpoint and offsets of the length categories were not statistically significant.**

> Length of vowel is frequently accompanied by a rising glide to a higher pitch, but such pitch glides seem to be non-phonemic. (1968: 44)

Yavapai exhibits the same type of pitch behavior.

## 4.0 Vowel Quality

### 4.1 Introduction

It is well known that vowel qualities may become more centralized with shorter vowels while longer length vowels tend to be peripheral to their shorter counterparts (Lehiste, 1970). When this centralization does occur in some languages, it is possible that vowel quality may become the primary phonological cue, rendering duration allophonic. Auditorily, there is very little difference in the qualities of Yavapai vowels. Munro states that in the Western dialect of Yavapai, short and long vowels have basically the same vowel quality.

> In contrast with most of the other languages with vowel length oppositions which I have studied, however, Tolkapaya long and short vowels are often almost identical in quality, with considerably less of the laxing or centralization I have often found associated with phonological shortness in other languages. (1990: 6)

The same auditory impressions of the Northeastern dialect of Yavapai are apparent. One often hears a slight centralization of the short length vowel but this is not always the case. No centralization in context is heard with vowels of long and extra-long duration in Yavapai.

### 4.2 Methods

In order to examine the extent of any centralization processes between the long and the extra-long length categories which might provide a cue to predicting vowel duration, formants were measured using Cspeech's LPC analysis (Milenkovic, Paul H., 1986) for the vowel [a] using the minimal triplet of Set 2a in context only. Set 2a showed a three way contrast in duration for both speakers when ANOVA was performed in the two pilot studies that were previously mentioned as well as in the present study. For a vowel of this type, centralization would be manifested by a lowering of the frequency of the first formant.

### 4.3 Results

The means and standard deviations for this data are reported in Table 7. Formant measurements show that for both speakers, [a] is a low central vowel. For each speaker, the formants of long and extra-long [a] are nearly identical to each other. Note that while short [a] for FE is slightly more centralized than either long or extra-long [a], short [a] for CS shows no centralization relative to its long and extra-long counterparts. Thus, the only centralization seen in this data is with the short [a] for FE. This data confirms our auditory impressions; the differences in vowel duration in Yavapai between the long and the extra-long length categories are not correlated with changes in vowel quality, at least for the low vowel.

**Table 7 - F1 and F2 in Hertz (SD) for the Vowel /a/ in Context: Set 2a for CS and FE**

| Length | Speaker CS | n= | Speaker FE | n= |
|---|---|---|---|---|
| water / a / | F1 = 1095 ( 5)<br>F2 = 1406 ( 99 ) | 3 | F1 = 910 ( 5)<br>F2 = 1399 ( 33 ) | 2 |
| be bitter / aˑ / | F1 = 1052 ( 37)<br>F2 = 1300 ( 26 ) | 2 | F1 = 1000 ( 95 )<br>F2 = 1396 ( 64 ) | 3 |
| cottonwood / aː / | F1 = 1038 ( 52 )<br>F2 = 1319 ( 35 ) | 2 | F1 = 969 (0)<br>F2 = 1396 (45) | 3 |

**Table 7 - This table shows that, for both speakers, /a/ is a low central vowel. It clearly shows that the long and the extra-long length categories are not centralized with respect to each other or to the short vowel /a/.**

## 5.0 Lexical category

## 5.1 Introduction and Discussion

Langdon has suggested that lexical category plays a role in predicting vowel length. Langdon suggests that in minimal sets for length, either there are two nouns and a verb or one noun and two verbs.

> It is noteworthy that each consists of either two nouns and one verb or two verbs and one noun, suggesting only a basic two-way contrast for any category. (1977: 247 )

Munro made the same claims regarding lexical category and vowel length.

> I know of no putative minimal triplets for vowel length involving three nouns, or three verbs, so perhaps true length differentiates minimal pairs in the same lexical category, with segmentally similar words in another lexical category receiving a third length at the speaker's discretion. (1990: 9)

The claims that Langdon and Munro make regarding lexical category and vowel length are correlations based only on true minimal triplets. We will extend the notion of lexical category to cases which are not exact minimal triplets. Note that for CS, there are examples with /o/ where all words for each length category are disyllabic nouns. For example, /ʔhko/ 'pine nut', /khtoˑ/ 'tripe' and /θmpoː/ 'bee', have the respective durations of 147 ms, 331 ms and 387 ms. A one-way ANOVA with length as the main effect was performed on these three words. There was a highly significant main effect of the hypothesized length categories. Post-hoc analysis on the means using the Scheffé F-test for multiple simultaneous comparison of means showed all comparisons of length categories significant at the .01 level. Given that all three words are nouns of distinct length categories, lexical category cannot be used to conflate any two length categories in this particular example.

Extending the notion of lexical category, we can propose that the long and the extra-long length categories are predictable based on their syntactic category. If one looks at the data set in Table 1, there are, in fact, a number of verbs in the long length category. The claim could therefore be made that the words in the long length category are verbs while words in the extra-long length category are nouns. However, some examples of short and extra-long verbs occur in sets where we have statistically verified three phonetic lengths and have also ruled out pitch as a determining factor of duration. Such a case is /i/ for CS. /ʔʔi/ 'I say', which contains a short /i/, and /miː/ 'cry', with an extra-long /i/, are both verbs. Therefore, it does not seem possible to predict vowel length based on lexical category. §5.2 below describes a more rigorous approach for testing the relationship between lexical (or syntactic) category and vowel length.

### 5.2 Method and Conclusion

A two-way ANOVA excluding the short length category, with length and lexical category (words were classified as either verbs or nouns) as the main effects, was performed on the context data pooled across vowels to compare the durations of nouns and verbs in the long and the extra-long length categories. Predicting length category by lexical category was not possible. Long verbs for CS were 349 ms while the long nouns were 377 ms. This 26 msec difference was not at all significant. Extra-long verbs for CS were 447 ms while extra-long nouns were 396 ms. The 51 msec difference was not even marginally significant. For FE, long verbs were 338 ms while long nouns were 369 ms. This difference was not at all significant. The extra-long length nouns and verbs could not be compared for FE because in the data set there is only one word, a verb, which is classified as an extra-long /i/. Recall that there was no context data for /i/ available for FE.

A separate analysis was done for /a/ on both speakers. The mean of nouns in the long category was 330 ms; for verbs of the same length category the mean was 333 ms for FE. CS showed the same distribution, with long nouns and long verbs at 430 ms and 394 ms, respectively. These differences were not at all significant. Lexical category is not a reliable predictor of vowel length.

### 6.0 Overall Conclusion

This paper has provided support for the notion that there three distinctive vowel lengths in Yavapai. Given the pooled analysis in §2.4.0 which showed that there are three degrees of quantity that are independent of speaker and vowel, a strong case for positing three distinctive vowel lengths can be made. The attempt has been made to correlate one of the vowel length categories to some common factors which are known to influence vowel duration in other languages. Pitch, vowel quality, and lexical category do not provide any clues for predicting vowel duration in Yavapai. In light of the evidence, one can only conclude that there are three distinctive vowel lengths in Yavapai. There are, however, remaining problems concerning how these underlying lengths are adjusted by the phonetic rules which affect durations on the basis of word length, pause location and other factors.

This conclusion raises two important theoretical questions. The first deals with the representation of three distinctive lengths in current generative phonology. In standard moraic theory (Hyman 1985, McCarthy and Prince 1986, Hayes 1989), phonological length is represented by the number of moras per syllable: one mora designates a short vowel while two moras designate a long one. There is a restriction of two moras per syllable (Hayes, 1989 allows three moras per syllable in some cases). Consequently, there can only be a binary distinction in length contrasts. The evidence from Yavapai and similar Pai languages such as Paipai and Hualapai raise problems for a theory that represents length distinctions based on a limited number of moras per nucleus. One possibility is that in Yavapai, one vowel length may be underspecified, with its duration dependent on higher level prosodic structures. This, however, is unlikely given that the results were based on context utterances in the same sentence frame. Presumably all higher level prosodic structure was identical for each word in context. Predicting vowel length based on higher level prosodic structure does not seem promising.

The second question is: what is the minimum difference required in duration between two vowels before they can be phonologically distinct? The minimum difference needed between the second and third degrees of length, based on the pooled Yavapai data in §2.4, is 8%. Lehiste points out that in German dialects, the long length category may be anywhere from 11% to 96% longer than the short length category. Lehiste (1970, cf. Fourquet, 1964) points out that "the near equality in the duration of short and long vowels in some dialects raises the question whether in these dialects duration is the primary distinctive factor." The same question is valid for Yavapai. However, this paper has analyzed the most obvious factors that are thought to co-vary with vowel duration and has proven them to be unreliable predictors of vowel duration in Yavapai.

Thus, there are three distinctive vowel lengths in Yavapai (and perhaps in Paipai and Hualapai as well). Furthermore, this distinction may be obscured in isolation if the root vowel is word final and therefore prepausal. Yumanists working on Yavapai probably attempted to verify the distinction between long and extra-long words in isolation, which, as this paper has shown, is precisely the environment where long and extra-long are neutralized.

# Appendix A

## Table 1. Data Set

# Table 1

**Data Set**

| **Yavapai**<br>**/V/**<br>/ … /<br>[ …] | **English**<br>**/V/** | **Yavapai**<br>**/Vˑ/**<br>/ … /<br>[ … ] | **English**<br>**/Vˑ/** | **Yavapai**<br>**/Vː/**<br>/ … /<br>[ … ] | **English**<br>**/Vː/** |
|---|---|---|---|---|---|
| a | | aˑ | | aː | |
| ʔɲa<br>ʔɲ̥ɲá | road n. | ʔɲaˑ<br>ʔɲ̥ɲáˑ | be black v. | ʔɲaː<br>ʔɲ̥ɲáː | sun n. |
| ʔha<br>ʔahá | water n. | ʔhaˑ<br>ʔaháˑ | be bitter v. | ʔhaː<br>ʔaháː | cotton-wood n. |
| ʔpa<br>ʔəp̚pá | bullet n. | θpaˑ<br>θəp̚páˑ | freeze v. | ʔpaː<br>ʔəp̚páː | person n. |
| ʔhma<br>ʔahmá | quail n. | ʔ-hmaˑ<br>ʔahmáˑ | my testicles n. | ʔhmaː<br>ʔahmáː | coyote melon n. |
| sʧa<br>səʧá | stand it up v. | m-ʧaˑ<br>mət̚ʧáˑ | you pour v. | hʧaː<br>hət̚ʧáː | Milky Way n. |

| | | | | | |
|---|---|---|---|---|---|
| i | | iˑ | | iː | |
| ʔ-i<br>ʔiʔí | I say v. | stiˑʈ-i<br>stiˑtí | rip v. | ʔiː<br>ʔiʔiː | wood n. |
| mi<br>mí | foot n. | ʔ-kmiˑ-km<br>ʔəkkm̩míˑkm̩ | I bring v. | miː<br>míː | cry v. |

**TABLE 1 (continued) - Data Set**

| **Yavapai**<br>/V/<br>/ ... /<br>[ ...] | **English**<br>/V/ | **Yavapai**<br>/Vˑ/<br>/ ... /<br>[ ... ] | **English**<br>/Vˑ/ | **Yavapai**<br>/Vː/<br>/ ... /<br>[ ... ] | **English**<br>/Vː/ |
|---|---|---|---|---|---|
| **e** | | **eˑ** | | **eː** | |
| ʔse<br>ʔs̩sé | shade n. | mʃeˑ<br>mʃ̩ʃéˑ | fear v. | yuklmeː<br>yukl̩lm̩méː | eyebrow n. |
| θwe<br>θuwé | be peaceful v. | smeˑ<br>sm̩méˑ | lose v. | kθʔeː<br>kθ̩θəʔéː | red berry drink n. |
| ʔe<br>ʔeʔé | be deep v. | ʔ-ʔeˑ<br>ʔeʔéˑ | I give v. | | |
| | | mweˑ<br>muwéˑ | be warm v. | | |
| | | ʔweˑ<br>ʔuwéˑ | mouse n. | | |
| **u** | | **uˑ** | | **uː** | |
| ʔ-yu<br>ʔyú | (my) eye n. | ʔyuˑ<br>ʔyúˑ | owl n. | huː<br>húː | nose n. |
| pur<br>púr | hat n. | yuˑrk-i<br>yúˑrki | come in v. | θmpuːrk-a<br>θm̩púːrka | fly n. |

**TABLE 1 (continued) - Data Set**

| **Yavapai**<br>**/V/**<br>/ ... /<br>[ ...] | **English**<br>**/V/** | **Yavapai**<br>**/Vˑ/**<br>/ ... /<br>[ ... ] | **English**<br>**/Vˑ/** | **Yavapai**<br>**/Vː/**<br>/ ... /<br>[ ... ] | **English**<br>**/Vː/** |
|---|---|---|---|---|---|
| **o** | | **oˑ** | | **oː** | |
| ʔhk**o**<br>ʔakʰó | pine nut n. | ʔ-hk**oˑ**<br>ʔakʰóˑ | my daughter's child n. | θmp**oː**<br>θmpóː | bee n. |
| sp**o**<br>sәp̚pó | know v. | kht**oˑ**<br>katʰóˑ | tripe n. | y**oː**<br>yóː | tooth n. |
| | | θ**oˑ**<br>θóˑ | eat meat v. | | |

**Table 1 - The lengths will be referred to as short, long ( ˑ ), and extra-long ( ː ). Morpheme boundaries are indicated by a hyphen. The root vowels to be discussed are in boldface. Primary stress is marked by an acute accent. Each box which contains Yavapai words shows both a phonemic form and its corresponding phonetic form directly below it.**

# Appendix B
## Statistical Results

**Table 2.** **CS:Isolation**
**Table 3.** **CS:Context**
**Table 4.** **FE:Isolation**
**Table 5.** **FE:Context**

# Table 2

**Statistical Results for CS for Tokens in Isolation for Vowels /a, e, i, o, u/**

| VOWEL | ANOVA<br>(main effect) | Post-Hoc<br>s vs. l<br>s vs. e-l | ANOVA<br>l vs. e-l |
|---|---|---|---|
| **/ a /** | $F(2,115) = 273$<br>$p< .001$ | $p< .01$<br>$p< .01$ | $F(1,75) = 1.0$<br>$p< .4$ |
| **/ e /** | $F(2,33) = 197$<br>$p< .001$ | $p< .01$<br>$p< .01$ | $F(1,19) = .4$<br>$p< .6$ |
| **/ i /** | $F(2,19) = 67$<br>$p< .001$ | $p< .01$<br>$p< .01$ | $F(1,13) = 32$<br>$p< .001$ |
| **/ o /** | $F(2,21) = 4$<br>$p< .001$ | $p<.01$<br>$p<.01$ | $F(1,18) = .4$<br>$p< .5$ |
| **/ u /** | $F(2,24) = 26$<br>$p< .001$ | $p< .02$<br>$p< .01$ | $F(1,10) = 5$<br>$p< .05$ |

**Table 2 - This table contains the ANOVA statistics for the comparisons of short/long, short/extra-long and long/extra-long. It is meant to accompany Figure 1 in the text.**

13,

# Table 3

Statistical Results for CS for Tokens in Context for Vowels /a, e, i, o, u/

| VOWEL | ANOVA<br>(main effect) | Post-Hoc<br>s vs. l<br>s vs. e-l | ANOVA<br>l vs. e-l |
|---|---|---|---|
| /a/ | F(2,42) = 188<br>p< .001 | p< .01<br>p< .01 | F(1,27) = 5<br>p< .04 |
| /e/ | F(2,18) = 42<br>p< .001 | p< .01<br>p< .01 | F(1,12) = .04<br>p< .9 |
| /i/ | F(2,10) = 51<br>p< .001 | p< .01<br>p< .01 | F(1,7) = 37<br>p< .001 |
| /o/ | F(2,15) = 72<br>p< .001 | p< .01<br>p< .01 | F(1,11) = 5<br>p< .05 |
| /u/ | F(2,18) = 4<br>p< .03 | p< .2<br>p< .01 | F(1,13) = 2<br>p< .3 |

Table 3 - This table contains the ANOVA statistics for the comparisons of short/long, short/extra-long and long/extra-long. It is meant to accompany Figure 2 in the text.

# Table 4

Statistical Results for FE for Tokens in Isolation for Vowels /a, e, i, o, u /

| VOWEL | ANOVA<br>(main effect) | Post-Hoc<br>s vs. l<br>s vs. e-l | ANOVA<br>l vs. e-l |
|---|---|---|---|
| / a / | F(2,52) = 67<br>p< .001 | p< .01<br>p< .01 | F(1,30) = 2<br>p< .2 |
| / e / | F(2,41) = 146<br>p< .001 | p< .01<br>p< .01 | F(1,27) = 2<br>p< .2 |
| / i / | F(2,38) = 83<br>p< .001 | p< .06<br>p< .01 | F(1,24) = 78<br>p< .001 |
| / o / | F(2,38) = 80<br>p< .001 | p< .01<br>p< .01 | F(1,23) = .3<br>p< .7 |
| / u / | F(2,20) = 6<br>p< .008 | p< .01<br>p< .01 | F(1,14) = .8<br>p< .4 |

Table 4 - This table contains the ANOVA statistics for the comparisons of short/long, short/extra-long and long/extra-long. It is meant to accompany Figure 3 in the text.

# Table 5

**Statistical Results for FE for Tokens in Context for Vowels /a, e, i, o, u/**

| VOWEL | ANOVA<br>(main effect) | Post-Hoc<br>s vs. l<br>s vs. e-l | ANOVA<br>l vs. e-l |
|---|---|---|---|
| **/ a /** | **F(2,65) = 110**<br>**p< .001** | **p< .01**<br>**p< .01** | **F(1,38) = 4**<br>**p< .07** |
| **/ e /** | **F(2,29) = 28**<br>**p< .001** | **p< .01**<br>**p< .01** | **F(1,22) = 1**<br>**p< .3** |
| **/ i /** | ----------- | ----------- | ----------- |
| **/ o /** | **F(2,19) = 33**<br>**p< .001** | **p< .01**<br>**p< .01** | **F(1,10) = .2**<br>**p< .7** |
| **/ u /** | **F(2,21) = 8**<br>**p< .003** | **p< .01**<br>**p< .01** | **F(1,15) = .4**<br>**p< .6** |

**Table 5- This table contains the ANOVA statistics for the comparisons of short/long, short/extra-long and long/extra-long. It is meant to accompany Figure 4 in the text.**

# Appendix C

## Munro Pilot Study (1990)

## Data Set and Pooled Duration Results

# Munro Pooled Data (1990)

## Data Set

### Set 1

| | |
|---|---|
| / ʔha / | ‘water’ |
| / ʔhaˑ/ | ‘cottonwood’ |
| / ʔhaː/ | ‘be bitter’ |

### Set 3

| | |
|---|---|
| / sca / | ‘lean’ |
| / caˑ / | ‘pour’ |
| / hcaː / | ‘Milky Way’ |

### Set 4

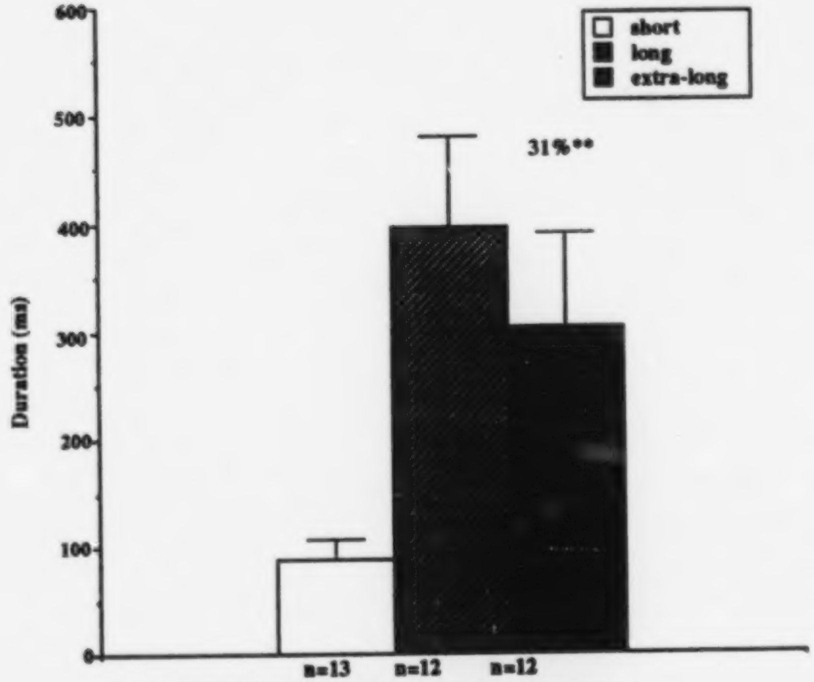
| | |
|---|---|
| / ʔʔe/ | ‘be deep’ |
| / ʔʔeˑ/ | ‘give’ |
| / kθʔeː/ | ‘berry drink’ |

### *Set 2**

| | |
|---|---|
| / ʔɲa / | ‘road’ |
| / ʔɲaˑ / | ‘sun’ |
| / ʔɲaː / | ‘be black’ |

---

**The following Data Set represents the words that Munro measured in her pilot study. The transcriptions are taken from Shaterian's 1983 dissertation. For Munro, the last two words in each set are classified as "long." The following page shows a graph of the pooled duration data for Munro (1990). Note that Set 2 is not included in these measurements because the vowel was measured along with the length of the initial glottal stop and the nasal consonant. Also note that the means shown in the graph include every token that Munro measured. The lowest and the highest duration values were not excluded. The measured durations from Munro's study show that the middle word in Sets 1, 3 and 4 actually have the largest duration values and should therefore be classified as extra-long while the last member of each triplet above, which is transcribed as extra-long should actually be classified as long.**



Pooled Data
Munro Pilot Study (1990)

This graph shows the pooled results of one minimal triplet and two near minimal triplets from Munro's pilot study. The results show three distinctive vowel lengths at better than the .01 level. Extra-long exceeds long by 31%. Note that although the long length category has the largest duration of 397 ms while the extra-long length category has the shorter duration at 304 ms, the existence of three distinct length categories cannot be denied. Given that, in all three sets, the long and the extra-long were consistently confused, leads to the conclusion that something else is going on besides mis-categorization of words. Also, the conflation of long and extra-long is not substantiated by the statistical results.

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## References

Chafe, Wallace L. (1962). "Estimates regarding the present speakers of North American Indian Languages." *International Journal of American Linguistics* 28.2: 162-171.

Crystal, Thomas H. and Arthur S. House. (1988). "Segmental durations in connected-speech signals: Syllabic Stress." *Journal of the Acoustical Society of America* 83: 1574-1585.

Delattre, P. (1966). "A Comparison of Syllable Length Conditioning Among Languages," *Int. Rev. Appl. Linguistics* 4(3): 183.

Fourquet, J. (1964). "Zur Deutung der Isophonen der Quantität." *Phonetica* 11: 155-163.

Gaitenby, J. (1965). "The Elastic Word." *Status Report on Speech Research SR-2*. Haskins Laboratories, New York: 3.1-3.12.

Hayes, Bruce. (1989). "Compensatory Lengthening in Moraic Phonology." *Linguistic Inquiry* 20: 253-306.

Hombert, J-M., J. Ohala and W. Ewan. (1979). "Phonetic Explanations for the development of tones." *Language* 55: 37-58.

Hoogshagen, S. (1959). "Three contrastive vowel lengths in Mixe." *Zeitschrift fur Phonetik und allgeeine Sprachwissenschaft* 12: 111-115.

Hyman, Larry M. (1985). *A Theory of Phonological Weight*. Dordrecht: Foris Publications.

Joël, Judith. (1964). "Classification of the Yuman languages." *Studies in Californian Linguistics*, ed. by William Bright (UCPL 34.) Berkeley and Los Angeles: University of California Press, pp. 99-105.

_________. (1966). *Paipai Phonology and Morphology*. Ph.D dissertation. University of California, Los Angeles.

Kendall, Martha B. (1976). *Selected Problems in Yavapai Syntax: The Verde Valley Dialect*. New York: Garland.

Ladefoged, Peter, and Ian Maddieson. (1990). "Vowels of the world's languages." *Journal of Phonetics* 18: 93-122.

Langdon, Margaret. (1976). "The Proto-Yuman Vowel System." *Hokan Studies*, ed. by Margaret Langdon and Shirley Silver. The Hague: Mouton. pp.129-148.

______________. (1977). "Stress, length and pitch in Yuman Languages." *Studies in Stress and Accent*, ed. by Larry Hyman (SCOPL, 4.). Los Angeles: Univesity of Southern California: 239-260.

Lehiste, Ilse. (1970). *Suprasegmentals*. Cambridge, Mass: MIT Press.

__________. (1972). "The Timing of Utterances and Linguistic Boundaries." *Journal of the Acoustical Society of America*. 51: 2018-2024.

McCarthy, J., and A. Prince. (1986). "Prosodic Morphology." Ms. University of Amherst, Massachusetts, and Brandeis University, Waltham, Massachusetts.

Munro, Pamela. (1990). "The Phonetics of Vowel Length in Tolkapaya Yavapai." Ms. University of California, Los Angeles.

Munro, Pamela, and Molly Star Fasthorse. (1992). Tolkapaya-English. Ms. University of California, Los Angeles.

Oller, D.K. (1973). "The Effect of Position of Utterance on Speech Segment Duration in English." *Journal of the Acoustical Society of America* 54: 1235-1247.

Redden, James E. (1966). "Walapai I: Phonology." *International Journal of American Linguistics* 32: 1-16.

Shaterian, A. (1976). "Yavapai [+sonorant ] segments." *Hokan Studies*, ed. by Margaret Langdon and Shirley Silver. (Janua Linguarum, Series Practica, 181). The Hague: Mouton.

__________. (1983). *Yavapai Phonology and Dictionary*. Ph.D. dissertation, University of California, Berkeley.

Tarnóczy, T. (1965). "Can the problem of automatic speech recognition be solved by analysis alone?." *Rapports du 5$^{e}$ Congrès International d'Acoustique*. Volume II, Conférences generales (Liege: D. E. Commins): 371-387.

Thomas, Kimberly D., and Alan Shaterian. (1990). "Vowel Length and Pitch in Yavapai. *Proceedings of the 1990 Hokan-Penutian Languages Workshop*, ed. by James E. Redden.pp. 144-153. Carbondale: Southern Illinois University.

Wares, Alan C. (1968). *A Comparative Study of Yuman Consonantism*. (Janua Linguarum Series Practica 57). The Hague/Paris: Mouton.

Whiteley, W.H., and M.G. Muli. (1962). *Practical introduction to Kamba*. London: University of London Press.

# Comparatives in Yuman Languages

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The Yuman languages of Southern California, western Arizona, and Mexico use several distinct comparative constructions. In this paper, I survey these different constructions in a historical and typological contextt, demonstrating that the occurrence in these languages of an 'exceed' comparative structure violates a number of putative universal correlations and conclude that the distribution of the Yuman comparative constructions suggests that the different constructions originated independently and were spread through contact rather than any one of them being reconstructable for the family as a whole.[1]

## §1. The Yuman data

The simplest comparative sentences (of the *He's taller than me* variety) include a compared predicate, typically adjectival (here, *be tall*), and two nouns, which we can refer to as the comparee[2] (*he*) and the standard (*me*).

§1.1. In several Yuman languages, sentences which express comparative notions simply contrast the situation of the comparee and the standard, each in its own clause. Kendall (1976: 145-47) discusses this type of comparative in the Verde Valley (Northeastern) dialect of Yavapai:[3]

YaVV (1) kmtu-v-č miñe: rav-a; kmtu+qwaθ-č ke miñe: rav-a om-i.
watermelon-dem-nom tasty very-tns; canteloupe-nom neg tasty very-tns not-tns
'Watermelons are tastier than canteloupes' ('Watermelons are tasty; canteloupes aren't so tasty')

M. Langdon (personal communication) has recorded a number of examples of similar structures in various Diegueño dialects, such as Campo:

DC (2) Saakwiny 'eshin 'etay 'eshin 'elyman
pot one big other small
'This pot is larger than the other' ('This pot is big, the other is small')

As in Verde Valley, the second clause in such a construction may be the negative of the first, may introduce a new antonymic predicate, or may be an elliptical negative. There is no fixed comparative construction.

§1.2. In contrast, the two southern-most Yuman languages, Paipai and Kiliwa, use a very different fixed construction to express the comparative, with a first clause saying that the comparee is 'not like' the standard, and a second saying the comparee has 'more' of the compared quality. In Kiliwa (M. Mixco, personal communication and 1985: 63), the 'be like' construction consists of a predicate noun followed by the locative suffix *-l* plus auxiliary 'be' followed by the different subject suffix *-m*.[4] This 'be like' sequence is followed by negative *mat* and a second clause in Kiliwa comparatives such as

K (3) paa-t ñaʔ-l yu-m mat ʔkus-rap
him-nom me-loc be-ds not tall-more
'He's taller than I'

The *-rap* element in (3) is a cliticized or suffixed form of the identical intransitive verb 'to hurt', which is used in many Yuman languages as an emphatic (Kendall glosses the Verde Valley cognate *-rav-* as 'very' in sentence (1), for example); in Kiliwa, this 'hurt' emphatic means 'more' (Mixco 1985: 133). The Paipai construction is almost identical, with a first clause containing a verb 'to be very' which looks very similar to the Kiliwa 'be like' construction:[5]

P (4) sa-č ñe-ulii tem k$^y$ul-rav
him-nom 1:obj-be:like not tall-more
'He's taller than I'

§1.3. The third type of Yuman comparative construction uses a special transitive predicate to express the relationship between comparee and standard. This verb normally has a translation like 'surpass', 'pass', or 'beat (in a contest)'. Consider the Tolkapaya Yavapai sentence (5), which could be paraphrased literally as 'Heather is tall, she surpasses (beats) me'. The standard is introduced as the direct object of the 'surpass' verb, and the syntactic relationship between the two verbs is indicated by the same-subject switch-reference subordinator *-k* on 'be tall':

YaT (5) Heather-che 'kyul-k ny-tkwiil-ma.
Heather-nom tall-ss 1:obj-surpass-asp
'Heather is taller than me'

All Yuman languages have switch-reference systems (Jacobsen 1967, Winter 1976), by which most subordinate clauses are marked according to whether their subject is the same as or different from that of some following reference clause (the main clause, in two-clause examples like those we consider here). Despite the fact that sentences involving switch-reference are often translated as loose conjunctions, there is considerable evidence that they involve strict syntactic subordination (the best such arguments are in Gordon (1983) and (1986: chapter 4), for Maricopa; see also §2.3 below).

The same construction is used in Havasupai, Hualapai, Mojave, and Maricopa, again with 'surpass, outdo', 'pass', or 'beat' as the main verb, with main-clause tense-aspect marking and the compared predicate again subordinated with a same-subject switch-reference marker:[6]

Ha (6) hatkwíl-ñ-č v-te-k kθár-ñ t-kwil-k (Kozlowski 1976: 96)[7]
wolf-dem-nom emph-big-ss coyote-dem mut-surpass-mod
'The wolf is bigger than the coyote'

Hu (7) há-č hmí-k ɲá ɲi-kwíl-k-we (Redden 1990: 39)
him-nom tall-ss me 1:obj-pass-ss-do
'He is taller than I am'

Mo (8) J.P.-ch humii-taahan-k nakut-ny aakwiily-a.
J.P.-nom tall-very-ss father.m.s.-dem surpass-aug
'J.P. is going to be taller than his father'

Ma (9) Marilyn-sh hmii-k nyi-ny-kyaam-k.[8]
Marilyn-nom tall-ss nyi-1:obj-surpass-asp
'Marilyn is taller than me'

§1.4. Comparable 'pass' / 'outdo' examples from several Diegueño dialects differ from the examples just presented, because they do not include switch-reference marking on the compared predicate. Mesa Grande and Viejas Diegueño examples (M. Langdon, personal communication) are presented in (10)-(11); similar Jamul Diegueño examples (A. Miller, personal communication) include the same 'outdo' verb used in Viejas:

DMG (10) Puu-ch rak nye-pekwilly.
him-nom be:an:old:man 1:obj-pass
'He is older than me'

DV (11) Nyaa puu kush kewam
me him tall outdo
'I am taller than him'

The compared predicates in these sentences are not marked as having the same subjects as the verbs which follow them, probably because these compared predicates are nominalized rather than subordinate. This hypothesis is suggested by a Yuma sentence[9] containing a comparative-like nominalization construction:

Yu (12) ...ṣamá:c ʔu:xóṭ $n^y$i:-$n^y$-ká:m-k...
luck good:nzr nyi-1subj/2:obj-defeat-k
'...I have surpassed you in good luck...'

The compared predicate in (12) is not expressed in a subordinate clause like those in sentences (5)-(9). The Yuma phrase *ṣamá:c ʔu:xóṭ* is a nominalization of a verbal expression cognate to Maricopa *shmaash hotk* 'to be lucky' (literally, 'to have good dreams'), formed with the infixed nominalizer *-u:-* (the glottal stop seen at the beginning of the Yuma verb 'to be good' is lost in Maricopa); this nominalization shows no 'I' or 'you' subject agreement. The compared predicates in Diegueño examples like (10)-(11) do not show overt nominalizing morphology comparable to Yuma *-u:-*, but a nominalization analysis provides the best explanation for why these sentences do not include switch-reference marking.

I return to comparative Yuman syntax in §3 at the end of this paper.

## §2. Yuman comparatives in a broader context

§2.1. Leon Stassen's important typological survey (1985) shows that there are two main types[10] of comparative constructions: single-clause structures in which the standard of comparison either appears in a fixed (generally locative or directional) case or is marked by a "particle" such as English *than* and two-clause structures, either "conjoined" ('This horse is big, that horse is small' or 'This horse is big, that horse isn't') or using a special comparative verb with a meaning like 'exceed'.

All the Yuman comparative constructions exemplified above fall into the second category. Stassen cites Kendall's Verde Valley Yavapai example (1) above to illustrate the conjoined comparative type, and sentences like (1)-(2) are not problematical for his typology.

Both of the other two types of Yuman comparatives appear to raise problems for Stassen's typological claims. The 'not like' type of comparative seen in Kiliwa (3) and Paipai (4) does not follow any of Stassen's typological patterns exactly, as far as I can tell.[11] Perhaps this structure is a special case of the third type of comparative, that seen in (5)-(12), which are clearly examples of what Stassen calls the 'exceed' comparative. Stassen describes this type of comparative as follows: "Its main characteristic is that the standard NP is invariably constructed as the direct object of a special transitive verb, the meaning of which can be glossed as 'to exceed' or 'to surpass'. Furthermore, the comparee NP always functions as the subject of this 'exceed'-verb" (1985: 42).

Stassen considers three subtypes of the 'exceed' comparative construction, including "a so-called 'serial verb'-construction", exemplified by Yoruba (1985: 42) (the Exceed-1 structure, p. 180):

Yoruba (13) O tobi ju u.
he big exceed him
'He is bigger than him'

In other cases, such as Hausa (1985: 43), 'exceed' is the main verb, and the compared predicate appears in a nominalized form (Exceed-2, p. 180):

Hausa (14) Doki ya-fi rago girma.
horse it-exceed goat bigness
'A horse is bigger than a goat'

In other cases, like Swahili (1985: 43), 'exceed' appears in a subordinate form, and the compared predicate is the main verb (Exceed-3, p. 180):

Swahili (15) Mti huu ni mrefu ku-shinda ule.
tree this is big inf-exceed that
'This tree is taller than that tree'

Based on his comparative survey of 110 languages, 26 of which use an 'exceed' construction, Stassen makes four universal claims concerning languages with this type of comparative, which I evaluate in §2.2-2.5 below. Regrettably, most of these claims are not supported by the Yuman data.[12] Stassen's study is ambitious and provocative, but my analysis indicates that more cross-linguistic data on 'exceed' comparatives should be considered.

§2.2. Here is Stassen's first claim regarding 'exceed' comparatives (1985: 54):

> If a language has an Exceed Comparative, then its basic word order is SVO.

The Yuman languages are all SOV languages, with basic transitive structures similar to the Tolkapaya sentence in[13]

YaT (16) Heather-che kthar 'uu-ma.
Heather-nom dog see-asp
'Heather saw a dog'

While most Yuman languages allow a certain amount of variation in word order for emphasis, the SOV order is most commonly volunteered, most commonly encountered in texts, and always described as basic. Thus, the SOV Yuman languages with 'exceed' comparative structures violate Stassen's first universal claim.

§2.3. Stassen's second claim (1985: 159) introduces some new terminology:

> If a language has an Exceed Comparative, then it may have only conditional deranking.

"Deranking" is a useful syntactic notion which applies to the form of predicates in "chains": Stassen writes, "I will classify a language as a deranking language only if, in the codification of its temporal chains, it is *the form of the predicate* in one of the sentences itself which signals the subordination of that sentence....in order for a construction to be called deranked, it must be the predicate of one of the sentences itself which is marked as a form of non-equal rank to the main predicate in the chain" (1985: 78). A deranked predicate thus may contrast with an embedded predicate, in which a complementizer distinct from a predicate identical to a main-clause verb may signal the non-main status of the clause. Stassen does not discuss switch-reference, but it seems very clear that switch-reference is a deranking construction, and that languages with switch-reference are deranking languages. Consider the Tolkapaya examples in (17):

YaT (17a) Heather-che swaar-k iima-ma.
Heather-nom sing-ss dance-asp
'Heather sang and danced', '$\text{Heather}_i$ sang and $\text{she}_i$ danced'

(17b) Heather-che swaar-m iima-ma.
Heather-nom sing-ds dance-asp
'Heather$_i$ sang and he/she$_j$ danced'

(17c) Heather-che swaar-m Lynn-che iima-ma.
Heather-nom sing-ds Lynn-nom dance-asp
'Heather sang and Lynn danced'

In each sentence, the main verb is *iima-ma*: the verb is *iima* 'to dance', lack of plural marking or pronominal prefixation indicates a third-person singular subject,[14] and *-ma* is a main clause tense-aspect ending. The same- and different-subject markers *-k* and *-m* cannot be used on main clauses in Tolkapaya, and the form of the 'sing' predicate in each of the examples in (17) is clearly subordinate and thus deranked.[15] The Tolkapaya switch-reference markers immediately tell the hearer something about the subjects of the two predicates in these sentences. Since the two verbs are linked by same-subject *-k* in (17a), 'Heather' must be the subject of both verbs. In (17bc), where *-m* is used, there must be two different subjects. These are made explicit in (17c), but (17b) shows just as clearly that another person must be involved as well as Heather.[16] (Overt independent pronouns are frequently omitted in Yuman.) I have used coordinate translations for the sentences in (17), but such sentences can be used to express either consecutive or simultaneous situations viewed either as one large event or two.

Stassen identifies two types of deranking (1985: 84-85): "conditional deranking", in which predicates are marked as deranked only when they share the same subject with the main clause, and "absolute deranking", in which a deranked predicate may have a different overt subject from the main clause. It is clear from this description that switch-reference is an absolute deranking system. The Yuman languages with 'exceed' comparatives and absolute deranking thus violate the claim that 'exceed' comparatives occur only in languages with conditional deranking.

§2.4. Stassen's next claim (1985: 180) correlates the type of 'exceed' construction used (as outlined in the discussion of (13)-(15) above) with the syntax of adjectives:

> a. If a language has an Exceed-1 (i.e., a serial) Comparative, it is verby. If an Exceed-language is verby, it has an Exceed-1 Comparative.
>
> b. If a language has an Exceed-2 Comparative or an Exceed-3 Comparative, it is nouny. If an Exceed-language is nouny, it has either an Exceed-2 or an Exceed-3 Comparative.

Stassen follows Hyman (1975: 136) in considering serialization as a term which "generally refers to verbs which occur in sequence, but which are not overtly marked for coordination or subordination with respect to each other", and he considers the non-main verbs in a serialization construction as deranked (1985: 161), despite their lack of overt mark, since only the main verb receives normal tense-aspect inflection. Serialization is conditional deranking, because it "generally ...requires identity of subjects" (Stassen 1985: 162). In order to evaluate the claim above, we must determine whether or not Yuman switch-reference is a type of serialization. This seems easy, based on the definition Stassen assumes: since switch-reference is indicated with an overt marker of subordination, and since it explicitly allows marking the contrast between same and different subjects, it cannot be serialization. However, the classification is somewhat controversial, for Redden (1990) has referred to the Hualapai comparative as a serial construction.

Stassen does not mention the semantic aspect of serialization, also discussed by Hyman (1975: 137): "Givón prefers to give a semantic definition to serialization, a term which he uses whenever the content of two verbs is seen to be one event or action". It is this feature of serialization which leads Redden (1990: 240) to state that "the best known serial verbs in Walapai are the comparatives....these look exactly like the so-called classical serial verbs of West Africa". Redden's discussion suggests that he considers crucial the fact that two Hualapai verbs are used in comparative sentences like (7) above to express an idea which is conveyed with one predicate in English. However, I believe that for Hyman and other authorities, and certainly for Stassen, this semantic factor is not a sufficient condition for serialization, but rather serves to identify which cases of juxtaposed unmarked verbs may be called serialized.[17]

Since the Yuman 'exceed' comparative constructions can be identified as non-serializing, at least in Stassen's terms, they do not fall in Stassen's Exceed-1 group. The clearest examples (those discussed in §1.3) do not involve nominalization of the compared predicate: Yuman languages have an impressive range of nominalizing morphemes, but these do not appear on switch-reference marked verbs, such as the compared predicate in a Yuman 'exceed' comparative like those in (5)-(9).[18] Thus, it seems appropriate to regard these Yuman comparatives as Exceed-3 comparatives, containing subordinated verbal forms.

The Diegueño comparative structures exemplified in (10)-(11) look more like serialization constructions, as Stassen uses that term, since they include unmarked verbs. However, as argued in §1.4, it seems more likely that these constructions involve nominalization, like that shown more overtly in the Yuma sentence (12). The comparative constructions in (10)-(12) should thus be considered Exceed-2 structures.

If, therefore, the Yuman 'exceed' comparatives can all be identified as Exceed-2 or Exceed-3 structures, then by Stassen's prediction (b) we would expect Yuman to be nouny.

A language which is verby has adjectives which belong to the same category as verbs, while a language which is nouny has adjectives which belong to the same category as nouns (Stassen 1985: 178-79). Yuman adjectives are a semantic subgroup of the category of verbs, as a comparison of the Tolkapaya examples (18) and (19) will show:

YaT (18a) '-'kyul-ma.
1-tall-asp
'I am tall'

(18b) M-'kyul-ee?
2-tall-Q
'Are you tall?'

(18c) k-'kyul-nya
rel-tall-dem
'the one who is tall'

(19a) '-swaar-ma.
1-sing-asp
'I sing'

(19b) M-swaar-ee?
2-sing-Q
'Do you sing?'

(19c) k-swaar-nya
rel-sing-dem
'the one who sings'

Verbs in Tolkapaya are marked with pronominal prefixes to show non-third-person subjects and objects; these work identically on adjectival verbs like *'kyuli* 'to be tall' and active verbs like *swaari* 'to sing'. Inflectional suffixes indicating tense, aspect, and mood are used identically on both types of verbs. And both types of verbs can be nominalized identically, for instance with the subject relative prefix *k-*. Tolkapaya and the other Yuman languages are undeniably verby.

But the Yuman 'exceed' comparatives in (5)-(9) are Exceed-3 comparatives, and those in (10)-(12) are Exceed-2 comparatives, so Stassen would predict Yuman to be nouny, as we have seen. Thus, the Yuman languages with 'exceed' comparatives violate Stassen's third universal prediction.

§2.5. Finally we come to Stassen's claim (1985: 319) concerning identity deletion:[19]

> Languages with an Exceed Comparative...are languages with limited identity deletion.

"The concept of identity deletion is meant to cover all those instances of chaining formation in which lexical material has been omitted or suppressed on the basis of the identity of that material with lexical material which is present elsewhere in the string...[including] Coordination Reduction and Gapping" (Stassen 1985: 280): there are "(a) languages which have *no identity* *deletion*; (b) languages which have *limited identity deletion* (i.e., subject-deletion only); (c) languages which have *total identity deletion* (i.e., both subject-deletion and verb-deletion)" (1985: 284). As noted above, Stassen predicts that languages with 'exceed' comparatives will have limited identity deletion, the ability to delete subjects but not verbs under identity. We have already seen that subjects are deleted under identity in same-subject switch-reference contexts. But to my knowledge no Yuman language has a construction in which verbs may be deleted under identity or gapped, in equivalents of English sentences like *John ate spaghetti and Mary lasagna.* Thus, the Yuman languages have limited identity deletion.

In this regard, the Yuman languages follow Stassen's predictions, as languages with 'exceed' comparatives with limited identity deletion. However, there is a corollary. Stassen predicts that "languages with *limited identity deletion* will tend to choose the *Relative Strategy*" for comparative formation, which includes the 'exceed' comparative type, but "languages with *absolute deranking* will tend to...avoid the Relative Strategy" (1985: 298). In fact, Stassen considers that a language with absolute deranking and limited identity deletion is an "excluded language type" (1985: 302). But we have seen that these are exactly the characteristics of the Yuman languages. Therefore, while the correlation between the use of an 'exceed' comparative and limited identity deletion is validated, the prediction that this type of language cannot have absolute deranking is incorrect.

Certainly, the Yuman languages appear to provide important new typological data which should be considered in a widespread typological survey of this construction.

## §3. Comparatives in the Yuman family

Can a comparative construction be reconstructed for Proto-Yuman?

We have seen that Yuman has a number of different comparative constructions, as shown in the map[20] at the end of this paper. There are languages which use only "conjoined" comparatives, such as those in §1.1 above. Although Stassen rightly argues that these illustrate a legitimate cognitive strategy for the expression of a comparative idea, I will follow Kendall (1976: 144-47) in assuming that these languages do not have a specific grammatical, as opposed to semantic or cognitive, comparative construction. But Verde Valley Yavapai and the Campo dialect of Diegueño have no fixed grammatical construction for expression of the comparative.

Languages seem to develop constructions with some explicit mark of comparison to fill this void. M. Langdon (personal communication) offers this Campo sentence as an example of an emerging comparative:

DC (20) 'enyaa-ch mat-k '-amp peshkwak may '-ilyewa-x maw.
I-nom ground-on 1-walk stand above 1-ride-irr be:not
'I would rather walk than ride (the horse)'

We can identify a construction as fixed when it is used by speakers without variation and, in particular, when it involves an idiomatic expression which departs from the literal meaning of a sentence. 'Exceed' comparatives in Yuman fit this last criterion: one can use the Tolkapaya Yavapai sentence (5), literally 'Heather is tall, she surpasses me', to say 'Heather is taller than me', even when 'Heather is tall' would not be true in isolation at all. The degree to which the comparative is a fixed construction varies from language to language. Kendall discusses a variety of different ways comparatives are expressed in Verde Valley, suggesting that speakers freely choose the way to make a comparative. M. Langdon reports that Diegueño "speakers are not very comfortable with them" (personal communication), and L. Hinton (personal communication) recorded no comparatives at all in her extensive work on Havasupai. On the other hand, grammaticalized comparative structures are well established in other languages: I never elicited a non-'exceed' structure in response to an English comparative stimulus in Mojave, Maricopa, or Tolkapaya,[21] and the same feeling is suggested by Redden's discussion (1990); J. Joël (personal communication) records 'not like' comparatives used naturally in Paipai texts.

A number of distinct types of grammaticalized comparative constructions appear to have evolved independently in Yuman. First, there is the 'not like' structure of Kiliwa and Paipai seen in §1.2: since these two languages do not share a recent common genetic history, but have been in close contact with extensive mutual influence for several hundred years, it seems most likely that one borrowed this construction from the other. Next, there are several 'exceed' or 'surpass' comparatives, which can be differentiated first according to whether they use switch-reference (§1.3) or nominalization (§1.4) of the compared predicate. This syntactic difference is cross-cut by a second difference, according to the 'exceed' / 'surpass' verb that is used. Many languages (Tolkapaya, Hualapai, Havasupai, Mojave, and Mesa Grande Diegueño) use a verb with a root reflecting Proto-Yuman *k$^w$i(:)l$^y$, with alternations in length and type of lateral, either unprefixed or with one of several different prefixes (*t-*, *aa-*, *pe-*). A second group (Maricopa, Viejas Diegueño, and Jamul Diegueño, plus apparently Yuma) uses a verb with a stem reflecting Proto-Yuman *k-a:m.[22]

Thus, there are at least five or six distinct types of comparatives in Yuman, the use of which correlates not at all with the accepted classification of the Yuman languages (Wares 1968 (cf. also Joël 1964, Langdon 1974: 66-67; the subgroup names here follow current usage), following which there are four major subgroups in the family: Kiliwa, the most divergent language; Delta-California (Diegueño and Cocopa); River (Mojave, Maricopa, and Yuma); and Pai (Northern Pai (Havasupai, Hualapai, and Yavapai) and Paipai). Instead, we see considerable variation within subgroups of the family and even within the languages for which most dialectal variation is reported, Diegueño and Yavapai. Even the use of the most widespread 'exceed' comparative, based on *k$^w$i(:)l$^y$, shows an idiosyncratic development of non-cognate prefixes, and both these and the *k-a:m verbs occur in unrelated branches of the family. Note too that although the three Diegueño dialects from which we have seen data exhibit widely differing comparative structures, the different 'exceed' structures in Mesa Grande and Viejas are alike in failing to mark switch-reference, in contrast with all the other 'exceed' structures—but similarly to the Kiliwa and Paipai 'not like' comparatives and to the divergent explicitly nominalized 'exceed' construction seen in Yuma.

Proto-Yuman probably did not have a specific comparative structure. Speakers made use of existing verbs and structures ('not like', switch-reference, nominalization) to develop individual comparative "strategies", which were then borrowed by neighboring groups, with appropriate modifications based on their own vocabulary. Thus wherever in the northern Yuman area the *k$^w$i(:)l$^y$ comparative arose, it was borrowed by other groups who employed their own *k$^w$i(:)l$^y$ verbs with different prefixes; the *k-a:m comparative must have a more southern origin, but a similar history. One might predict that Cocopa, located near Yuma between Maricopa and Viejas Diegueño, will also prove to use a *k-a:m comparative.

## §4. Conclusion

This short survey shows that there is a great range of comparative structures within the small Yuman family, ranging from the lack of any fixed comparative structure to a well-developed, fully grammaticized 'exceed' comparative similar to those reported in various SVO languages of Africa and elsewhere — an occurrence which raises problems for the claims in Stassen's ambitious typological study of comparative constructions. The range of structures and their distribution suggest that no one comparative construction should be reconstructed for Proto-Yuman.

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[1] This paper is a detailed survey of data to be considered further within a more comprehensive study of 'exceed' comparatives I am preparing with George A. Broadwell.

I am grateful to James E. Redden for including this paper in this volume, even though I was not able to present it at the conference, and for his input on this topic. I'm also grateful to the Hokanists with whom I profitably discussed these issues at the conference, including Leanne Hinton, William H. Jacobsen, Jr., Judith Joël, Margaret Langdon, Marianne Mithun, and Mauricio Mixco, each of whom, along with James Redden and Amy Miller, with whom I was unable to talk in person, went to some trouble to send me helpful examples, papers, or other discussion after the conference; many of these people, along with G. A. Broadwell and Joshua Katz, also gave me additional helpful and supportive comments on earlier drafts of this paper. Many great thanks to all. Because of all this help, I am able to present data here from every Yuman language except Cocopa, regarding which I have no specific information.

As ever I owe a tremendous debt to my consultants, the late Nellie Brown and others for Mojave, Molly Fasthorse for Tolkapaya Yavapai, and Pollyanna Heath for Maricopa: they provided all examples cited here from these languages. My Mojave work follows Munro (1976) and Munro, Brown, and Crawford (to appear). My recent work on Tolkapaya and Maricopa has been supported by the Academic Senate of the University of California, Los Angeles, to whom I am most grateful. Thanks also to Russell Schuh, Edward Keenan, and the members of the UCLA American Indian Linguistics Seminar for discussion of various points in Stassen (1985).

[2] This terminology is borrowed from Stassen (1985).

[3] I have retained the orthography and translation of my sources in each example. Most are in phonemic transcription; the Tolkapaya, Mojave, Maricopa, and Diegueño sentences are in practical orthography. I have modified segmentations only in the case of Kozlowski's Havasupai example (7). Interlinear glosses have been slightly adapted to unify the examples in the paper: for instance, I use "nom" rather than "subj" everywhere to gloss the nominative case marker, and I gloss the unmarked (stem) form of pronouns with English accusative pronouns—without a following nominative suffix, such words are normally (but not always) translated as objects. I have glossed adjectival verbs with the adjective word alone rather than with 'be' plus the adjective word, but these are all full verbs in each language represented (see §2.4 below).

I use the following abbreviations in this paper: asp = aspect, aug = augment vowel, dem = demonstrative, ds = different-subject switch-reference marker, inf = infinitive (Swahili), loc = locative case, mod = modal? mode? (Kozlowski 1976), m.s. = man speaking, mut (see fn. 7), neg = negative, nom = nominative ("subject" for some authors), nzr = nominalizer, obj = object, ss = same-subject switch-reference marker, tns = tense. 1, 2, and 3 indicate first, second, and third person respectively. A colon is used to separate elements of a complex gloss.

Languages are abbreviated as follows: DC = Campo dialect of Diegueño, DMG = Mesa Grande dialect of Diegueño, DV = Viejas dialect of Diegueño, Ha = Havasupai, Hu = Hualapai (Walapai), K = Kiliwa, P = Paipai, Ma = Maricopa, Mo = Mojave, YaT = Tolkapaya (Western) dialect of Yavapai, YaVV = Verde Valley (Northeastern) dialect of Yavapai, Yu = Yuma. The names of the African languages exemplified in (13)-(15) below are not abbreviated; these data are cited unchanged from Stassen (1985).

[4] This whole construction is somewhat puzzling. As Mixco (1985: 63) notes, the short vowel of *yuu* 'be' here is odd. In most Yuman languages the predicate nominal is marked with the nominative (subject) suffix rather than some other case marker (Munro 1977). Also, in all examples Mixco gives, different-subject *-m* is used on 'be', regardless of the surrounding syntactic environment, and apparently even in main clauses. Perhaps this last fact is related to the use of a realis *-m* suffix identical with the different-subject marker on 'be' and a group of other verbs in specified circumstances in the River languages, including main clauses (see Munro and Gordon (1990) and the references cited therein); this matter merits further comparative study.

[5] Examples (3) and (4) are both from Mauricio Mixco (personal communication). Judith Joël (personal communication) has given me several similar but more complex Paipai examples from volunteered texts which I do not cite here.

Several facts suggest that the Kiliwa and Paipai examples are directly comparable. Paipai *uli:* (translated by both Joël and Mixco as 'be like', but glossed by Joël as 'very') is attached directly to the preceding nominal predicate. Perhaps it derives directly from a source like the more transparent Kiliwa *-l* plus *yu-m* construction.

[6] It should be noted that hierarchical structure rather than linear order is crucial here. In many languages, the switch-reference marked clause can be extraposed, so that the linear order is

reversed. For instance, consider Tolkapaya (i), a variant of (5):

(i) Heather-che ny-tkwiil-ma 'kyul-ka.
Heather-nom 1:obj-surpass-asp tall-ss

Here again the main verb is 'surpass', which carries the main clause aspectual suffix *-ma*. But in (i) the subordinate clause has been postposed, and the surface order of the two clauses reversed.

[7] I have slightly modified Kozlowski's segmentation and interlinear gloss to conform with recent analyses of Yuman languages, replacing his "det(erminer)" with "dem(onstrative)" and indicating the same-subject component of the embedded verb 'big' here. Regarding the prefix *t-* on 'surpass/pass', which both he and Redden indicate to be optional in the comparative construction, Kozlowski writes that such a *t-* "is often used to express involvement of two parties in some action" (he does not explain the gloss "mut"); I assume this refers to the use of *t-* as an occasional plural morpheme. My own guess, based on the non-optional *t-* and the *aa-* of the Tolkapaya and Mojave cognates whose use is exemplfied here, would be that this *t-* is (like *aa-*) a causative prefix. But why it should be "optional" in the closely related languages Havasupai and Hualapai is unclear.

[8] *Nyi...* is a proclitic which precedes pronominal inflection on the verb (Gordon 1986).

[9] I thank Amy Miller for providing this sentence from a text collected by Abraham Halpern. (12) is glossed with Miller's literal translation of this sentence; in context, the sentence is translated 'I have more power than you'. It comes at the end of a quotation in which one character is bragging to another. The final *-k* in (12), then, is not directly identifiable either with the realis aspectual *-k* nor with the same-subject *-k* seen in the Maricopa sentence (8) (though Yuma and Maricopa are very similar, and the verb in (12) is the same as that in (8); cf. fn. 8): as originally observed by Sandra Chung, most Yuman languages use *-k* on the verbs of direct quotations, regardless of the switch-reference facts.

Note that the existence of (12) does not mean that Yuma does not have a comparative construction more similar to (8) (for saying, for instance, 'I am luckier than you'). It seems probable to me that Yuma does have such a switch-reference construction for translating simple comparative sentences, but no data on this are currently available.

[10] The reading I present here does not follow Stassen's classifications, which vary somewhat in different parts of his book. Stassen also notes that there are languages with "mixed" types of comparatives, and languages which use more than one structure. Further, he distinguishes several different cognitive strategies for forming comparatives, as mentioned in §2.5.

[11] Stassen assumes that the use of "comparative-marking", with morphemes like English *-er* or *more*, Kiliwa *-rap*, or Paipai *-rav*, is "irrelevant to our typology" and "independent of...the choice of a particular type of comparative construction" (1985: 28). No comparable morphology is used elsewhere in Yuman.

All emphases (underlining, italics) in quotations from Stassen in this paper are his.

[12] Broadwell and I (cf. fn. 1) have found numerous other similar problems to those I describe below in other languages with 'exceed' comparative constructions, especially the Muskogean languages Choctaw and Chickasaw. This section owes a lot to discussion with him.

[13] I will use Tolkapaya Yavapai (cf. Hardy 1979) to exemplify general facts about Yuman syntax (of course, each language shows minor individual variation).

[14] Yumanists will recognize a slight fudge here. Certainly sentences without plural verb stems can sometimes be used with plural subjects, but this is uncommon in simple sentences produced out of context.

[15] There are *-k* and *-m* tense/aspect suffixes in some other Yuman languages, but in those languages too it is easy to devise syntactic tests which identify switch-reference clauses as subordinate (cf. Gordon 1983). I should note that Tolkapaya does have a main-clause-final incompletive suffix *-m*, but this occurs only following existential auxiliaries (Hardy 1979). Note too that the Tolkapaya switch-reference markers have variant forms *-ka* and *-me*, which are most commonly used when a switch-reference marked clause is extraposed, as in (i) above.

[16] (17b) could in some contexts have a second interpretation in addition to that given in the text,

something like 'Heather$_i$, since he/she$_j$ was singing, danced', with the 'sing' clause interpreted as center-embedded. But this does not change the fact that 'sing' and 'dance' must have different subjects. The normal reaction to the sentence is that Heather sang and someone else danced, and that since Heather's identity is known it is a bit odd not to state the dancer's.

[17] The Hualapai data Redden presents are very typical of a number of American Indian languages sometimes called "verb-oriented" (Van Valin 1977: 53, describing Lakhota), with a far greater ratio of verbs to nouns than is seen in languages like English (Munro and Gordon 1982: 113). I would thus question Redden's claim that the structure used in Yuman 'exceed' comparative is unique in North America. The parallels between the Yuman 'exceed' comparatives described here and those Broadwell and I are studying in Choctaw and Chickasaw (cf. also Scott 1981) are remarkable.

[18] Gordon (1986: ch. 4) presents a good description of the contrast between nominalized and switch-reference clauses in Yuman.

[19] My main focus here is not conjoined comparatives, but Stassen's claims regarding identity deletion in languages with conjoined comparatives also call for reevaluation. He writes that "languages with a conjoined comparative...are languages with no identity deletion" (1985: 319), citing Kendall (1976: 148) as evidence that Verde Valley Yavapai has no "identity deletion" (a term I discuss further in the text). The cited passage relates to an unusual construction involving direct and indirect discourse, surely not a standard context for studying ellipsis or identity deletion. I will not question Stassen's interpretation of Kendall's description of this very restricted construction, but Verde Valley Yavapai, like all Yuman languages, allows extensive identity deletion in same-subject and other clauses (cf. Kendall 1976: 85-98); this fact also presents a problem for Stassen's claim that "languages with a Conjoined Comparative....are languages with...no deranking" (1985: 317).

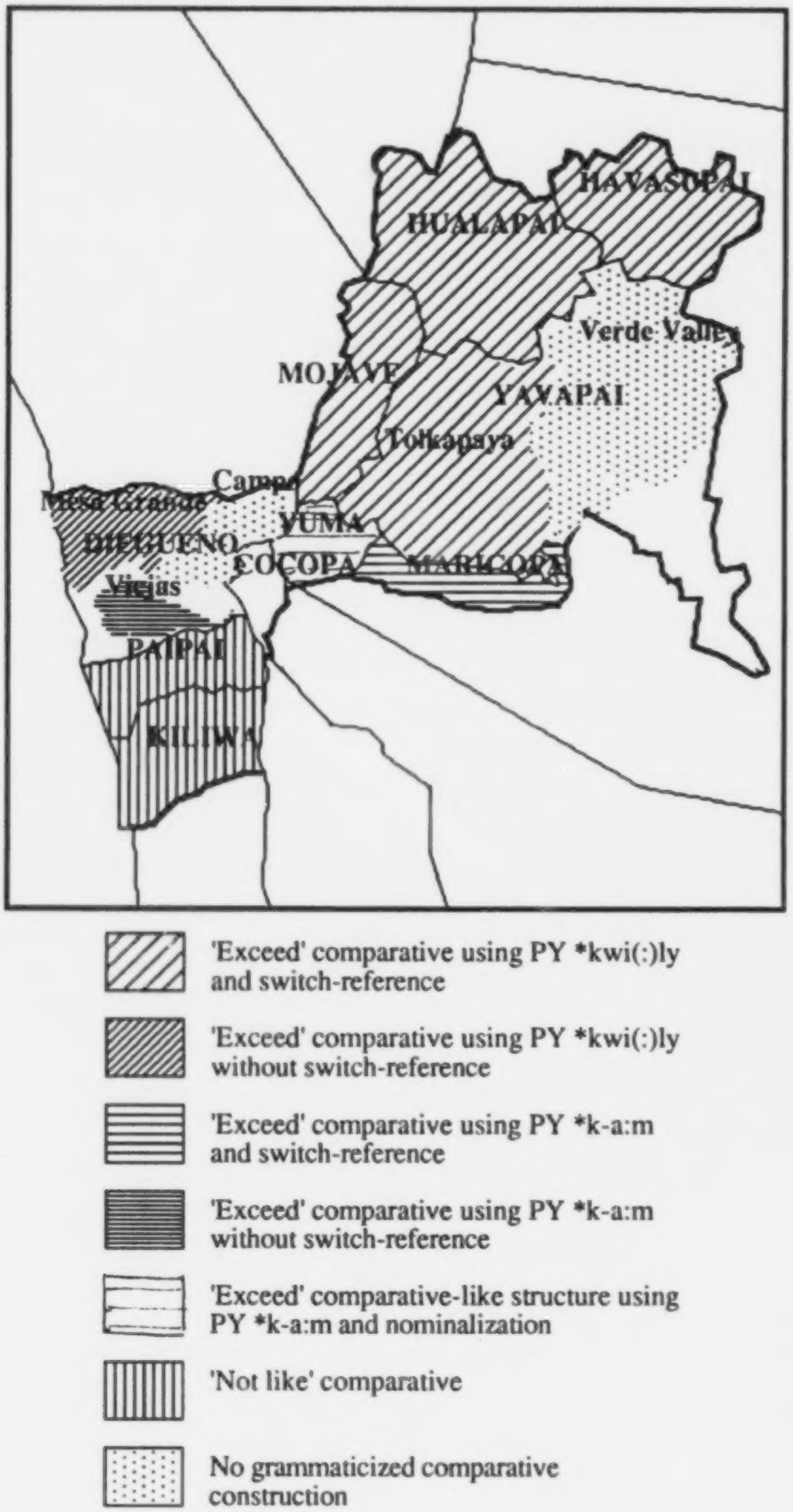
[20] The map of the Yuman languages was adapted from Shaterian (1983) with help from J.P. Munro.

[21] On the other hand, the Tolkapaya construction in (5) does show an unusual variant:

(ii) Heather-che ny-tkwiil-k 'kyul-ma.
Heather-nom 1:obj.-surpass-ss tall-asp 'Heather is taller than me'

In (ii), in contrast to (5), 'surpass' is the subordinate verb, and the compared predicate 'be tall' is the main verb. This reversal of hierarchical structure occurs occasionally elsewhere in Yuman; cf. Gordon (1986: 239-40).

[22] I follow the accepted view of Yuman stem structure, based on Langdon (1970), and thank Margaret Langdon for helpful discussion. As she suggested to me, both Maricopa *nyi...kyaam-k* and Viejas *kewam* are probably cognate to Yuma *ka:m* 'conquer', whose plural *kacam* shows that its initial *k-* is a prefix on a vowel-initial stem (cf. Langdon 1976, Munro 1982); the Yuma verb *n*$^y$*i:...ka:m* 'defeat', shown in (12), is derived from this stem. Thus, Viejas speakers may have reanalyzed the stem of the verb as *wam*. The variant Maricopa plural *nyi...kyshuuaam-k* provides ample evidence for the suggested segmentation. Another probable cognate is Cocopa *n*$^y$*wa:m* 'defeat, beat, get the best of' (Crawford 1989: 196), which has an initial clitic cognate to those seen in Maricopa and Yuma.


HAVASUPAI
HUALAPAI
Verde Valley
MOJAVE
YAVAPAI
Tolkapaya
Campo
Mesa Grande
YUMA
DIEGUENO
COCOPA
MARICOPA
Viejas
PAIPAI
KILIWA
'Exceed' comparative using PY *kwi(:)ly and switch-reference
'Exceed' comparative using PY *kwi(:)ly without switch-reference
'Exceed' comparative using PY *k-a:m and switch-reference
'Exceed' comparative using PY *k-a:m without switch-reference
'Exceed' comparative-like structure using PY *k-a:m and nominalization
'Not like' comparative
No grammaticized comparative construction

## References

Crawford, James M. 1989. Cocopa Dictionary (University of California Publications in Lingusitics 114). Berkeley: University of California Press.

Gordon, Lynn. 1983. Switch-Reference, clause order, and interclausal relationships in Maricopa. In J. Haiman and P. Munro, eds., Switch-Reference and Universal Grammar, pp. 83-104. Amsterdam-Philadelphia: John Benjamins Publishing Company.

Gordon, Lynn. 1986. Maricopa Morphology and Syntax (University of California Publications in Linguistics 108). Berkeley: University of California Press.

Hardy, Heather K. 1979. Tolkapaya Syntax: Aspect, Modality, and Adverbial Modification in a Yavapai Dialect. Ph.D. disssertation, UCLA.

Hyman, Larry. 1975. On the change from SOV to SVO: Evidence from Niger-Congo. In C. N. Li, ed., Word Order and Word Order Change, pp. 113-48. Austin: University of Texas Press.

Jacobsen, William H., Jr. 1967. Switch-reference in Hokan-Coahuiltecan. In D. Hymes and W. Bittle, eds., Studies in Southwestern Ethnolinguistics (Studies in General Anthropology 3), pp. 238-63. The Hague: Mouton.

Joël, Judith. 1964. Classification of the Yuman languages. In W. Bright, ed., Studies in Californian Linguistics (University of California Publications in Linguistics 34), pp. 99-105. Berkeley: University of California Press.

Kendall, Martha B. 1976. Selected Problems in Yavapai Syntax: The Verde Valley Dialect. New York: Garland Publishing, Inc.

Kozlowski, Edwin. 1976. Havasupai comparatives. In J. E. Redden, ed., Proceedings of the First Yuman Languages Workshop, University Museum Studies 7 (Carbondale, Il.: Southern Illinois University Museum): 93-97.

Langdon, Margaret. 1970. A Grammar of Diegueño: The Mesa Grande Dialect (University of California Publications in Linguistics 66). Berkeley: University of California Press.

Langdon, Margaret. 1974. Comparative Hokan-Coahuiltecan studes (Janua linguarum, series critica 4). The Hague-Paris: Mouton.

Langdon, Margaret. 1976. The Proto-Yuman vowel system. In M. Langdon and S. Silver, eds., pp. 129-148.

Langdon, Margaret, and Shirley Silver, eds. 1976. Hokan Studies (Janua Linguarum, series practica 181). The Hague: Mouton.

Mixco, Mauricio. 1985. Kiliwa Dictionary (University of Utah Anthropological Papers 109). Salt Lake City: University of Utah Press.

Munro, Pamela. 1976. Mojave Syntax. New York: Garland Publishing, Inc.

Munro, Pamela. 1977. From existential to copula: The history of Yuman BE", in C. N. Li, ed., Mechanisms of Syntactic Change, pp. 445-490. Austin: University of Texas Press.

Munro, Pamela. 1982. Vowel-initial roots in Yuman, in J. E. Redden, ed., Proceedings of the 1981 Hokan Languages Workshop (Occasional Papers on Linguistics 10), pp. 24-36. Carbondale, IL: Southern Illinois University.

Munro, Pamela, Nellie Brown, and Judith G. Crawford. To appear. A Mojave Dictionary (UCLA Occasional Papers in Linguistics 10). Los Angeles: UCLA.

Munro, Pamela, and Lynn Gordon. 1982. Syntactic relations in Western Muskogean: A typological perspective. Language 58: 81-115.

Munro, Pamela, and Lynn Gordon. 1990. Inflectional ablaut in the River Languages, in S. DeLancey, ed., Papers from the 1989 Hokan-Penutian Workshop (University of Oregon Papers in Linguistics 2), pp. 69-86. Eugene: University of Oregon.

Redden, James E. 1990. Serial vs. Consecutive verbs in Walapai. In B. Joseph and A. Zwicky, eds., When Verbs Collide: Papers from the 1990 Ohio State Mini-Conference on Serial Verbs (OSU Working Papers in Linguistics 39), pp. 240-46. Columbus, OH: Ohio State University.

Scott [Batchler], Janet E. 1981. Comparative Constructions in Chickasaw. M.A. thesis, UCLA.

Shaterian, Alan W. 1983. Yavapai Phonology and Dictionary. Ph.D. dissertation, University of California, Berkeley.

Stassen, Leon. 1985. Comparison and Universal Grammar. Oxford-New York: Basil Blackwell.

Van Valin, Robert D., Jr. 1977. Aspects of Lakhota Syntax. Ph.D. dissertation, University of California, Berkeley.

Wares, Alan Campbell. 1968. A comparative study of Yuman consonantism (Janua linguarum, series practica 57). The Hague-Paris: Mouton.

Winter, Werner. 1976. Switch-reference in Yuman languages. In M. Langdon and S. Silver, eds., pp. 165-74.

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